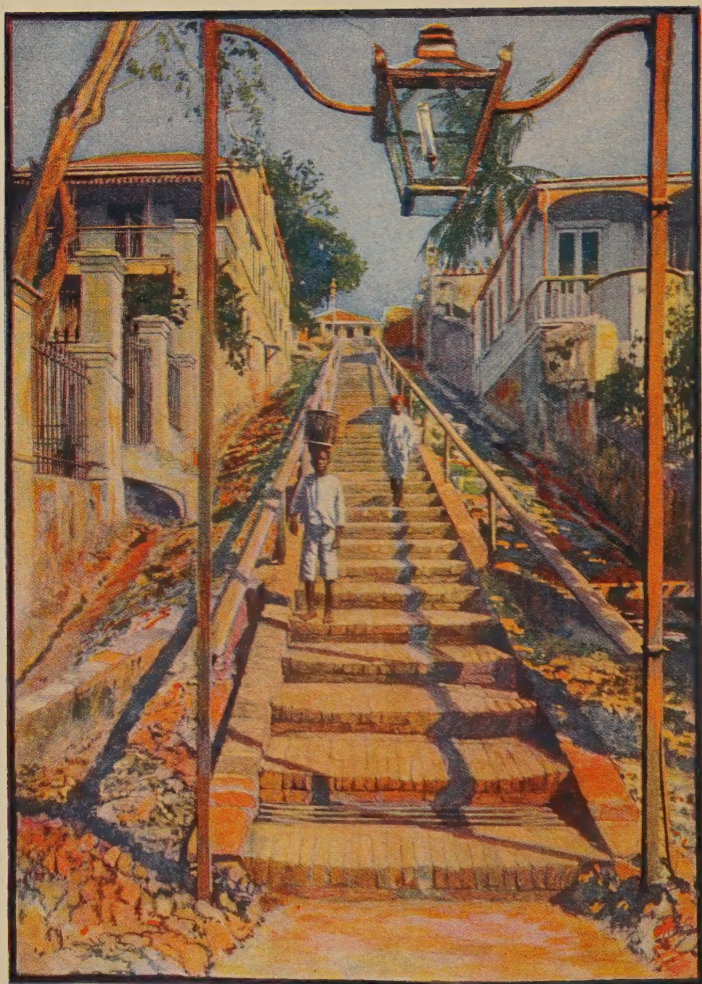


CARPENTER'S NEW GEOGRAPHICAL READER





The hills of St. Thomas, Virgin Islands, are so steep that many streets in the city are flights of stone steps leading down to the harbor.

CARPENTER'S NEW GEOGRAPHICAL READER

AUSTRALIA, THE PHILIPPINES
AND OTHER ISLANDS
OF THE SEA

BY

FRANK G. CARPENTER, LITT.D., F.R.G.S.

AUTHOR OF

"AROUND THE WORLD WITH THE CHILDREN" AND
READERS ON COMMERCE AND INDUSTRY



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BOOKS BY
FRANK G. CARPENTER

"Reading Carpenter is Seeing the World"

Introduction to Geography
AROUND THE WORLD WITH THE CHILDREN
Geographical Readers

NORTH AMERICA

SOUTH AMERICA

EUROPE

ASIA

AFRICA

AUSTRALIA, THE PHILIPPINES, AND OTHER
ISLANDS OF THE SEA

Readers on Commerce and Industry

HOW THE WORLD IS FED

HOW THE WORLD IS CLOTHED

HOW THE WORLD IS HOUSED

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PREFACE

FOR more than twenty years Carpenter's Geographical Readers have held a large place in the teaching of geography. They have supplied the flesh and blood necessary to clothe the dry bones of the geographic textbooks, and have made the countries and peoples living entities in the minds of the pupils. The original books had the quality of a story, and the pupil was so interested that his reading of them was viewed as a pleasure, not as a task.

In Carpenter's New Geographical Readers, of which this volume is the last, all the charm of the original books has been retained, and many new features have been added, which give the child a live, working knowledge of his world to-day. The human interest has been intensified. The pupil is shown how the various countries and peoples are associated with the United States in the life, work, and trade of the world, and how they are related to him as a patriotic American citizen.

During the twenty years since the original volumes were written, Mr. Carpenter traveled more than one hundred and fifty thousand miles in foreign lands, taking notes and photographs with a view to this revision. He visited practically every island group described in this volume, making his several journeys along the routes followed in these imaginary tours with the children.

The original form of the books, that of personally conducted travels over each continent, has been retained. In

company with the author, the child himself goes from island to island, visiting the people in their cities and villages, on their farms and in their factories, finding out how they live and work.

The search for this knowledge provides the reason for the travels; and this fact is made more prominent by a series of questions, worked out in connection with tables at the back of the book. These present a practical teaching outline, and give the pupil a vivid impression of every country, its people, and its trade, resources, and industries. By constant comparisons with familiar things at home, he is taught to visualize other lands and the part they play in the great world in which he lives. Patriotism and loyalty to America are particularly stressed, and the pupil is made to feel the importance of his own land, and his part in it as a young citizen.

The first editions of Carpenter's Geographical Readers have been said to mark a new era in the teaching of geography. The New Geographical Readers mark an even greater advancement, and will prove of extraordinary value as supplementary books for the study of geography.

Acknowledgment is made to Miss Josephine Lehmann, who has aided greatly in the revision of this book. Acknowledgments are made also to the Publishers' Photo Service, the Wide World Photos, the Australian Commonwealth government, the United States Bureau of Insular Affairs, the United States Navy Department, the Hawaii Tourist Bureau, and the Philippine Government bureaus for some of the illustrations in this volume. Those of Madagascar were loaned by the American Geographical Society, publishers of the *Geographical Review*.

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The home of a settler in the interior of Australia.

AUSTRALIA, THE PHILIPPINES, AND OTHER ISLANDS OF THE SEA

I. AUSTRALIA, THE WORLD'S LARGEST ISLAND

THIS book will describe the tour of a party of boys and girls traveling around the world to visit strange lands and strange peoples. Every one who reads it will be a member of the party. He must forget, for the time, that he is in America, and must imagine himself with us in those far-away countries.

We are to explore the chief islands of this big round earth. A look at the map will show you what a vast number of them there are and how they are scattered. Some lie on the edge of the broiling Equator, others are close to the ice-clad poles. Some are high islands formed by the peaks of volcanic mountains that have been thrown up out of the sea. Others are low islands built up by little coral animals from the bed of the ocean. All together, there are so many islands that our tour must be carefully planned so that we may not miss the principal ones. Even with the best of planning, it will be impossible to set foot upon all of them.

We shall start with Australia, which is the largest island on the globe. It is so huge that it is numbered among the continents. It is more than three fourths as big as all the countries of Europe, and almost as large as the United States

and Alaska. It is so vast that more than thirty-three islands as large as the island of Great Britain could be put within its borders. A journey around its coast is two thousand miles longer than the distance from New York to London. From east



Comparative size of Australia and the United States.

to west the continent is longer than from the Hudson River to the Great Salt Lake, and from north to south its width is greater than the distance between Philadelphia and Denver.

If we could view this vast body of land as the sun sees it, we should find it composed of mighty plains tilted up at the edges and sloping toward the center, somewhat like an enormous soup plate of irregular shape. At the eastern side we should see a range of mountains, making that part of the plate the highest. In the southeast is Mount Kosciusko (kōs-ĭ-ŭs'kō), the highest mountain of Australia, reaching almost a mile and a half above the level of the sea, and looking like a knob on the rim of the plate.

This island continent is largely a desert. The chief moisture-laden winds, which come from the Pacific, strike the range of mountains along the eastern coast, and the cold air squeezes them dry, so that when they pass over the interior of the continent they have no more water to lose. As a result, the eastern slope of the mountains has a good rainfall, and there we shall find numerous streams, cultivated lands, the largest cities, and most of the people. In that

part of Australia are situated the chief dairying and fruit industries, and the greater part of the railways. On the table-lands and plains are some of the largest sheep and cattle ranches in the world.

An immense area in the middle of the continent is a dreary desert. Some of it is as thirsty as the Sahara, having vast regions of rock and sand through which we might ride for hundreds of miles and see nothing but dusty scrub and bushes covered with thorns, and where the only water is in salt marshes, brackish lakes, and holes in the rocks.

The Australian continent belongs to the British Empire. The English claim it by right of exploration and settlement, having seized the lands and driven back the black aborigines, until the natives now hold somewhat the same place that the Indians do in our country.

Australia was the last grand division of the earth to be visited by Europeans. It was discovered by Portuguese, Spanish, and Dutch navigators, but it was not thought to be of any value until Captain James Cook, the great English explorer, made a voyage along the eastern coast. This was about six years before we declared our independence of England. Captain Cook brought back glowing reports of the richness of the country, and the English at once sent out men to take possession of it. The first settlements were composed largely of criminals from England, who worked in chains guarded by soldiers. Later, when it was found that the climate was good and the soil fertile, other people came and the prison settlements were done away with. By and by colonies were established in the best parts of the country. They grew rapidly, and now there are white people living in all the habitable regions.

The continent is divided into six states and one territory, the states being united as the Commonwealth of Australia.

Western Australia comprises the whole western portion of the country, with Perth as its capital. The central part of the island is occupied by South Australia and the Northern Territory. The mountainous southeastern section of South Australia contains rich lands, but much of the northern part is unfit for cultivation. Its capital is Adelaide (ăd'ē-lād). The Northern Territory has few inhabitants except the native aborigines. It formerly was part of South Australia, but is now controlled by the Federal government.

The eastern section of the continent is divided into the three states of Victoria, New South Wales, and Queensland. Victoria, at the south, is very rich in farm and pasture lands. Its capital is the city of Melbourne, and it has many other cities and large towns. New South Wales, bounding it on the north, is much larger than Victoria and is also exceedingly rich. Its capital is Sydney, the principal seaport and largest city of Australia. Queensland, which is the vast region still farther north, includes all northeastern Australia. It is a land of pastures, farms, rich mines, and sugar plantations. Its capital city is Brisbane. The sixth state is the island of Tasmania, which lies off the coast of Victoria. Its capital is Hobart.

II. ALONG THE SOUTHERN COAST TO MELBOURNE

BEFORE we begin our exploration of Australia, let us stop a moment and think where we are. We are south of the Equator on the other side of the globe from the United States. It was winter when we left our homes. It is summer here. Our watches are all wrong, and we must change them if we would not be always calculating the difference of time. The clocks in Melbourne are all fifteen

hours ahead of those in New York, so that when our friends in the United States are going to bed on Monday night, we are eating our luncheons on Tuesday noon.

We might have begun our voyage to Australia at Seattle or Vancouver, crossing the wide Pacific, and stopping at the



Route map of Australia.

Hawaiian Islands. However, we decided to come by way of New York and Liverpool. And what a long journey it has been! First we were almost a week on the Atlantic. At Liverpool we boarded one of the fastest mail steamers that ply between England and Australia. That was five weeks ago, and we have been traveling steadily ever since. Passing through the Strait of Gibraltar and the Suez Canal,

we steamed south through the hot Red Sea into the Indian Ocean. We stopped at the island of Ceylon off the coast of India, and first set foot upon Australian soil at Fremantle, the port for the city of Perth. From here a railway runs eastward across the southern part of the continent, but we decide to remain on our steamer until we reach Melbourne, and to take a trip on the railway later.

Our stay on shore at Fremantle has been hot, and we are glad to feel the sea breeze again. We steam south about Cape Leeuwin (loo'in), the peninsula at the southwestern corner of Australia, stopping at Albany, another town of Western Australia, where ships from Europe stop on their way to Melbourne and Sydney. A day later we are again on board, moving along the southern coast of Australia.

Much of our route here is over what is known as the Great Australian Bight, which extends for eleven hundred miles along this coast. How bleak and dreary the land is! It ends in cliffs several hundred feet high; and for more than six hundred miles it is a desert region with no rivers flowing into the sea. Should our ship be wrecked, we might as well let ourselves drown, for we should certainly starve or die of thirst if left on this coast. The only vegetation is scrub, thorn bushes, and sharp-pointed grasses that cut like a knife.

There are no signs of life except in the air and on the sea. We see a whale now and then, and nearer the coast a huge turtle floating on the waves. Gulls, big and little, follow us, hovering above the ship and darting into the water after something that has dropped overboard. High over us great albatrosses soar on their enormous wings, and below them we see penguins swimming, now and then diving for food. Their hoarse quacking is carried to us over the water. There are other strange sights, but the strong winds and high waves and the dry, dreary coast make us tired of the

trip, and we are glad when at last we steam slowly up the River Yarra (Yăr'ä) and come to anchor at one of the many wharves of Melbourne.

Melbourne has grown until its docks stretch along the river for six miles. That three-story brick building in a bend of the stream is the municipal market, where the housewives of Melbourne buy supplies, and where butter



A street in Melbourne. Automobiles keep to the left.

and other foods are stored to be shipped abroad. Large steamers anchor right in the city, and the biggest ocean vessels have a safe harbor only a few miles below these wharves.

We spend the next day motoring about Melbourne. It is a handsome city almost as big as Detroit, with wide streets, magnificent buildings of gray stone, and so many parks and gardens that it seems more than half pleasure grounds. We drive out to the Flemington Lawn Race Course and take a

spin around the track, which the Australians think the finest of its kind on earth.

After that we stop at the public library and the art gallery, and visit the colleges and schools. Melbourne has excellent schools; indeed, this is true of every city in Australia. In the thinly settled regions the schools are often so far apart that the children have to ride back and forth on the train or on horseback. In other places teachers go from house to house, giving instruction; and in still others a teacher is provided only once or twice a week. In New South Wales there are traveling schools, each consisting of an automobile or wagon, carrying a tent for the teacher and one for the school. The teacher drives up to the appointed place, sets up his tents, takes out his books, and holds his classes. At the end of a week he gathers his belongings and, with final instructions to his pupils, moves on to the next place.

When the states of Australia united and formed the Commonwealth, both Sydney and Melbourne wanted to become the national capital. Neither city would give up its claim, and so plans were made to build an entirely new city for this purpose. This new capital is Canberra (kăn'bĕr-ă). It is situated in the Federal Capital Territory, in the state of New South Wales, about halfway between Melbourne and Sydney. We feel proud when we learn that the man who drew the plans for it was an American. Building operations were begun in 1923. The cornerstone of the parliament buildings was laid by the Prince of Wales when he visited Australia two years after the World War, and since then work on the new city has been going on steadily. The next Parliament will meet at Canberra.

In the meantime, Melbourne has continued to be the seat of government of this vast island. Here live the Governor-



Australian children going to school on horseback. They live several miles from the schoolhouse.



A country school in Victoria.

General appointed by the King of England, and also the Prime Minister and his cabinet. There is a parliament somewhat like our Congress at Washington, with representatives and senators elected by the people. We find that women can vote here as they do in the United States.



A suburban home near Melbourne.

From Melbourne we take many motor trips out into the surrounding country. This state of Victoria is the smallest in the Commonwealth. It is only a little larger than Minnesota, but in proportion to its size it is far richer than any other on the Australian continent. Nearly all of it can be used for farming or grazing. It raises most of the important grains and vegetables and fruits of the temperate zone, and about one half of it is rich in deposits of gold, silver, and

other minerals. It is more thickly settled than the rest of the continent, and we pass through many fine towns in the region about Melbourne.

III. THE GOLD MINES OF AUSTRALIA

HOW would you like to find a gold nugget as big as a football and weighing as much as yourself? Several such lumps have been found near the town of Ballarat (băl'-â-răt'), where we are now, and who can tell what we may discover if we wander among the hills?

Ballarat is seventy-five miles from Melbourne. It was the birthplace of the mining industry of Australia. Gold in paying quantities was first found in New South Wales shortly after the discovery of this precious metal in California, but the production was small, and it was not until some of these big lumps were unearthed near Ballarat that people from all parts of the world flocked here to dig. They came by sea to Melbourne and thence inland to this place. There were so many that Melbourne soon grew to be a rich city. Indeed, its wealth of to-day started with the discovery of gold.

The first gold found was in loose veins and as dust in the bottom of the dry beds of streams and along their banks. Then a nugget was unearthed that weighed ninety-eight pounds, and then another still larger. Later was found the famous Welcome nugget, which weighed more than one hundred and eighty-four pounds and which sold in Melbourne for fifty thousand dollars; and later still the Welcome Stranger, the biggest of all.

Do you wonder that the miners became almost crazy over those discoveries? They dug up the earth and washed it

again and again and again to get out the gold, so that every bit of dirt over which we are walking this morning has been handled many times. As the loose gold gave out, the miners dug deeper and deeper. They found veins of the precious metal away down under the earth. Great works were built to bring up the gold-bearing rock and crush it. Some of the mines extended half a mile below the surface of the ground.

The Ballarat mines are now practically all worked out, and this little city is a much quieter place than it was two-score years ago. Nevertheless, we can still see how gold is mined here.

How would you like to attend school in a mine? This is what is done in the mining college at Ballarat. The college is built right over a mine, which is worked by the students under the direction of their teachers. The boys themselves blast the rock and operate the machinery that hoists it to the surface. They also work in the laboratories and the reduction works connected with the school, where the ore is assayed and the gold extracted from it.

Not far from Ballarat is Bendigo, another famous gold-mining city. At one time it was producing gold to the amount of a million dollars a year, and its mines are still yielding up the yellow treasure.

Both Ballarat and Bendigo are in the state of Victoria, which has produced half of all the gold mined in Australia. Since the existence of the metal here was first discovered, the total amount found has amounted to three billion dollars. Think of what that means! If it all could be gathered together and made into shining new five-dollar gold pieces, it would be enough to give five of them to every man, woman, and child in the United States.

To-day the leading states in gold production are Victoria and Western Australia, but every state in the Common-

wealth has contributed to this vast amount. Soon after the big nuggets were found near Ballarat, rich mining camps sprang up not only in Victoria but also in New South Wales. Then gold was discovered in Queensland, and later in Western Australia, South Australia, and Tasmania.

Mount Morgan, a mountain of iron mixed with gold, near the coast of the state of Queensland, was said at one time



Washing earth for gold, in Victoria.

to have been the richest gold deposit in the world; and about the town of Gympie, some distance off, there was so much gold in the earth that boys sometimes found the yellow grains in the gutters after a rain.

The gold output of Australia is now obtained by prospectors, who wash the dust and nuggets from the rivers

and streams, and also by underground and hydraulic mining methods. The industry is not so important as it once was, and the annual production of gold from the whole country is only half as much as was formerly produced by Victoria alone. It may be that as the vast Northern Territory is opened up by exploration, new fields will be discovered.

In the meantime, Australia is exploiting her other mineral resources. Silver and copper are found in every state, and the Broken Hill silver mines in New South Wales are among the richest in the world. Zinc also is found at Broken Hill, and tin in several states. Iron is mined and smelted in many places, and there are deposits of coal in every state. The largest coal mines are near Sydney. They provide fuel for all the southern part of Australia, and besides, they export it to Chile, New Zealand, and many of the small Pacific islands.

Returning to Melbourne, we visit the mint, where gold dust and bullion are turned into money. There are two other mints in the Commonwealth, one at Sydney, and one at Perth. The Melbourne mint reminds us of the one many of us have visited in Philadelphia, but the money we find here is British instead of American. There are gold sovereigns and half sovereigns, and coins of silver and bronze. We see also gold bullion, uncoined gold in bars or ingots, some of which is used by jewelers and dentists and some exported.

When we return to our hotel, we have seen so much gold that it dances before our eyes in our sleep, and we dream of yellow nuggets as big as our heads, which we make into enough beautiful coins to give us all we want for the rest of our lives.



Airplane view of the business district of Sydney. Ferry boats carry passengers to other parts of the city.

IV. GLIMPSES OF SYDNEY

WE have just completed a five-hundred-mile voyage from Melbourne around the southeastern tip of Australia, and are entering the famous harbor of Sydney, the largest city on the continent. We seem to be in a winding lake with hundreds of bays and inlets, and dotted by many islands. How beautiful everything looks! The sky is bright blue, the trees and the grass are the greenest of green, and the sunlight is dancing on the waves of the harbor. In some places wooded hills rise straight up from the shore, and in others the land slopes so gently that a great city has been built upon it.

The residents of Sydney claim that its harbor is the finest in the world. Its entrance is The Heads, a natural gateway about a mile wide guarded by gigantic rocks as high as the tallest church steeple, so protecting the shipping that, no matter how stormy the sea is outside, there are quiet waters within. The harbor is deep enough for the largest ocean steamers, and its coast line is so long that all the ships of all the world could anchor here and have room to spare.

See that big steamer at the right of our vessel. That is a British ship of ten thousand tons that has come to Sydney for a cargo of wool. Beyond is a passenger steamer starting out for San Francisco. Next to it is a French vessel from Marseille, and farther on are huge steamers from South America and the United States, taking on or putting off goods. There are ships here from China and Japan, from the Mediterranean and from India and Africa, and coasting steamers that ply between Australia and all the islands of the southern Pacific. There are British battleships, and cruisers that belong to the Australian navy.

It is hard to realize what a volume of business Sydney does. It is the chief port of the Commonwealth, and much of the imports and exports of Australia passes through here. The ships lying at the wharves have brought foodstuffs, automobiles, and other manufactured products, and are loading on wool, grain, coal, and meat for all parts of the world. Towering high over one of the quays are great con-



Cutting the ripe grain on a great wheat ranch.

crete elevators for storing the wheat that is brought here to be sent out to other lands. New South Wales has millions of acres on which this grain is grown.

The harbor is shaped so that ships lie at anchor in the very heart of the city. When we land, we find ourselves in one of the chief business sections. It is only a short taxi ride to our hotel, where we leave our baggage and then start out for a walk about the city.

How home-like the streets look! Now we are in Martin

Place, which might be one of our own American streets dropped down here on the other side of the world. It is crowded with American-made automobiles and trucks, and bordered by handsome business buildings, some of which might almost be called skyscrapers. In other streets the buildings are older and not so tall. Many of the best blocks are made of yellow sandstone from quarries near the city.

Notice how the streets curve this way and that. They are as crooked as those of Boston, which, it is said, were laid out along cow paths. Sydney has such winding streets that the people of other Australian cities say it was planned by a bullock driver who stood at the harbor and threw boomerangs up the hills, laying out the thoroughfares along the lines of their flight. A boomerang is a curved, flat club about a yard long, which a man can hurl in such a way that if it does not strike anything, it will turn and sail back to his feet.

The streets are paved with wooden blocks so closely fitted together that they seem like wood carpeting. They are so hard and smooth that one horse can haul a load of three tons over them. The pavements are of eucalyptus (ū-căl-līp'tūs), the famous Australian hardwood. The continent has excellent timber, which is so useful for pavements and railway ties that it is in great demand in other countries.

The stores have plate-glass windows and sometimes galvanized-iron awnings over the street to shield passers-by from the sun. Here is an arcade, a street roofed with glass and walled with stores, which runs through from one side of a block to the other. Such arcades are common in the Australian cities. The people can walk from store to store through them, keeping cool and dry, no matter how hot or rainy it is outside.

See the goods in the windows! The price tags are printed

in English, but the figures are in pounds, shillings, and pence, and we have to do problems in arithmetic to know what they mean. The Australians use English money, and the pound (about \$5), the shilling (25 cents), and the penny (equal to about two of our cents), will be our money during our stay. Having spent most of the British money we got at Melbourne, we again stop at a bank to exchange our greenbacks for gold, silver, and copper coins, and then go on with our walk.

We have many purchases to make, and we soon find that we must decide where to go by what is in the show windows rather than by the store signs. Many of the names on the shop fronts are different from those on our stores at home. Here, for instance, is the sign of a "fellmonger"; that is a fur store, as we see from the skins of foxes, bears, kangaroos, antelopes, and other animals displayed in the windows. Hardware merchants are known as "ironmongers," and those who sell cloth are "drapers." Druggists in Australia, as in England, are called "chemists" and drug stores "chemist shops." Lumber dealers are "timber merchants," and the lumberman is a "timber getter," living and working in the forests that enrich this wonderful country. As we become more familiar with the differences in the use of names, we enjoy our shopping tour as much as if we were at home.

In Australia candies are almost always called "sweets," and sometimes "lollies," a contraction of "lollypops." We see the word "lollies" over some candy stores; and at the theaters and football games boys go about with baskets of candy, crying out, "Lollies, ladies! Lollies, gents! Don't you want a box of fine fresh lollies?"

Suppose we stop a moment and watch the people. They are little different in appearance from an American or

British city crowd, except that most of the Australians are taller than either the Americans or the English. See that man passing by! He is more than six feet in height, and the woman with him is almost as tall. In our country tall thin persons are often nicknamed "beanpoles," but here they are called "corn stalks." Only now and then do we see any except white people. Australia is called the "white man's continent" because it has so few people of the yellow or the black race. They are now kept from coming into the country by the strict immigration laws.

Every one seems to be well dressed. Even the men who are mending that sidewalk wear good clothing. They look more like American workmen than like the poorer working people of Europe. Australia is a new country and, as there is much to do, wages are high and the working classes live in comfort. The people make money and spend it quite freely. We can see this by the expensive goods in the store windows. Everything one can think of is displayed here, no matter in what part of the world it is made. Australians will pay for the best, and so all countries send their goods here for sale.

Here we are at the Post and Telegraph Office. It has many branches, as we can see by the signs over the doors. There is a postal savings bank, and next door are telegraph and telephone departments. All these things are operated by the government, the Australians believing that they should be managed at the lowest possible cost for the people. The federal and the state governments control practically all the railroads, and also own the street car systems in many of the cities.

That great building up the street is the Town Hall, where the mayor and other city officials have their offices. It also contains an audience room for public amusements, where

every week one can attend a concert free of charge. The city keeps an organist to play for the people, and it owns the largest pipe organ south of the Equator. The organ has nine thousand pipes, some as high as a three-story house and some almost as small as a pin. In Melbourne we saw another hall like this with an organ almost as large.

There goes a party of big boys in uniforms with flat bats in their hands. One is tossing up a ball and catching it as he runs. That is one of the cricket clubs of Sydney, and its members are on their way to play a match with the crack team of Melbourne. Let us follow and have a look at the game. It is played by two teams of eleven members each, and with bats and balls somewhat like those used in baseball. We find thousands of people at the playground. There are other clubs playing in different parts of the field, and as we go from one to another we hear nothing but talk about sports.

The Australians are a sporting people, and almost every man, woman, and child gives a part of each week to play. Cricket is the favorite game here, being as popular as baseball is in the United States. Sydney has several thousand acres of parks devoted to public amusements, and in Melbourne alone there are one hundred parks and a dozen grounds especially for football and cricket. We visit the zoo and the botanical gardens, and go out to one of the many beaches to watch the people swimming and surf riding.

Coming back to the city, we stroll about the Domain, a park of about one hundred acres right in the heart of Sydney, facing the harbor. It is the most popular of all pleasure grounds here, being especially crowded on Sundays, when any one who wishes can speak upon any subject he chooses, if he can get the people to listen. There are no signs warn-

ing us to keep off the grass, and we walk or run where we like, rejoicing that our travels south of the Equator have turned winter to summer and that all is so fresh and green here when everything at home is covered with snow.

V. IN A WOOL WAREHOUSE — A VISIT TO A SHEEP STATION

THE annual sheep show is now being held in Sydney. The city is full of "squatters," as sheep farmers are called, and we can see sheep from all parts of the continent and from Tasmania and New Zealand as well. Sheep so thrive in this latitude that Australasia, which means Australia and its neighboring islands, is one of the chief sheep lands on earth. It gives pasture to eighty million sheep, or one seventh of the total number in all the world. All together, it has more sheep than either Russia, Argentina, or South Africa, which are the other principal sheep-rearing countries. At times Australasia has had as many as one hundred million sheep, or so many that if they could be driven four abreast along the Equator, they would form a woolen belt about the waist of old Mother Earth.

Sheep farming is carried on in almost every settled part of this continent. Some of the stations, as such farms are called, are so large that it would take us several days to ride around one on horseback, and a single field often contains eight hundred acres, or more than five ordinary American farms.

In parts of our country one hundred sheep are considered quite a large flock. In New South Wales there are two hundred sheep stations that contain more than one hundred thousand acres apiece, and in all Australia there are eighteen

stations each big enough to support more than one hundred thousand sheep.

This great industry has grown up since the continent was discovered. There were no sheep here when Captain Cook landed, but shortly after settlements were established, some Spanish Merino sheep were brought in. They thrived and formed the beginning of the immense flocks of to-day.



A shepherd and his flock on an Australian sheep station.

Suppose we take an automobile to the grounds where the sheep show is being held. We hear the bleating and baaing before we reach them, and we follow the sound. At last we come to a great building with a floor divided into pens, so built along aisles that we can easily go to any part of it. There are several hundred sheep in the building, and each has its own pen well bedded with straw. Some of the

animals have blue or red ribbons on their necks. They are the ones that have taken prizes.

What fine sheep they are! I venture to say you never saw so much wool on animals. Look at this prize ram! Don't be afraid that he will butt you! He is a gentleman of distinguished ancestry, noted for his fine breeding, and he has been so kindly handled that he is perfectly safe. Were it not for his horns, his nose, and his feet, we might think him merely a bundle of wool. His fleece lies on him in rolls and folds, the skin apparently wrinkling to make it hold more. The wool on his head is so long and thick that we see only the tips of his ears; his eyes are far back of those holes in the wool. The fleece hangs down from the under parts of the body, covering the legs almost to the hoofs. We poke our fingers into the wool. We cannot reach the skin without pressing the knuckles far in. How greasy it feels! It is dirty and gray outside, but when we pull it apart it is the color of cream. This sheep has more than forty pounds of wool on him, and his owner would not sell him for three thousand dollars.

The wool on the common sheep of Australia, however, weighs only a few pounds, often not more than five or six. Such animals can be bought for about the same prices that they bring in our country. We can easily see what a difference it makes if each sheep yields much wool or little. Take, for instance, that squatter over there who has fifty thousand sheep. If each of his flock can be made to yield one pound more at a shearing, he will have fifty thousand pounds more wool to sell every year; so you see how important it is to have good sheep, and why the people pay so much for them.

Leaving the sheep show, we visit one of the huge warehouses near the wharves of Sydney. This city is the chief

wool market of Australia, and wool is sent here from all over the continent. Most of it comes from the states of New South Wales and Victoria, which together furnish more than half of the total wool product of Australia. We go from place to place in the vast building, making our way in and out through the wool, which is brought here by the thousands of bales. Each bale is about as high as our heads and weighs almost four hundred pounds. It is wrapped in yellow bagging and is marked with the name of the station from which it has come.

Some of the bales have been opened, and the white wool seems to be pouring out upon the floor. In places men are sorting the wool, and in others buyers are examining the piles. Each man takes up the wool in his hands and pulls it apart. We do likewise, then throw the stuff back on the pile. How dirty it is! Our hands shine as though coated with vaseline, and our cuffs are soiled with the grease.

We ask one of the buyers, a man dressed in overalls and a long linen coat buttoned tight up the front, what the wool brings. He replies that the price varies according to the quality of the wool and the state of the market. He shows us that it makes a difference also from what part of the sheep the wool comes, some bales being composed only of the shearings from the legs and tails, while others come from the sides and under parts of the body. Fine wool brings twice as much as coarse wool, and it takes an expert to know just what is best.

After the wool in the warehouses has been examined by the buyers, the sales are held in the Wool Exchange, and the bales are loaded on the ships. Some of the wool is kept here to be manufactured into clothing of different kinds, but most of it is exported to Europe, Japan, and the United States. The steamers that carry it to our country cross the Pacific

to San Francisco or Seattle, and those bound for Europe go by the way of the Suez Canal.

Wool is the chief product of Australia and brings in more money than anything else that the country exports. The amount sold abroad in a year is often worth a quarter of a billion dollars or more. The mutton that is frozen and shipped to other nations brings in twenty-five million dollars more.

Now let us go out into the country to visit a sheep station. One of the principal sheep farmers in New South Wales has asked us to visit his station, and we gladly accept the invitation. We leave in the evening and ride all night on a train. When we awake we are passing through great pasture fields, some containing large droves of cattle and others thousands of sheep. Now and then we go by fields of wheat, rye, barley, or oats, or through forests of eucalyptus and other Australian trees; but nearly everywhere there are sheep, sheep, sheep! We see single flocks that contain as many as two thousand animals; at one place we ride for nearly a mile past a drove of sheep on its way from one station to another.

There are but few farm buildings and no great barns such as we have in most parts of the United States. The weather is so mild that the grass is good all the year round and the sheep need no other food. They require no shelter, living out in the fields from one year's end to the other. The houses we see are chiefly one-story structures, painted yellow and roofed with galvanized iron. Some have iron chimneys. Nearly all have iron tanks on their porches to catch rain water as it comes from the roofs.

At last we reach the end of our railroad journey. Our host has telegraphed that we are coming, and we find an automobile waiting to take us across the country to his

home. We are surprised when we reach it. It is a big building of only one story, but with so many rooms that it covers a great deal of ground. It is inclosed in wide porches and is surrounded by beautiful grounds dotted with trees, shrubbery, and flowers. At one side we see a tennis court and grounds for cricket and golf.

Surrounding the main house are many smaller buildings. Some of them are offices, stores, blacksmith and carpenter shops; others are the homes of the employees. It takes a large number of men to run such a station, and the home settlement is almost a village.

There are also garages and stables with horses for pleasure and work. Our host uses an automobile to visit the different parts of his property, but there are not many improved roads so far out here in the country, and in rainy weather the ground is too muddy for an automobile. Almost every man on the station has a horse, and every boy and girl here knows how to ride.

We spend some time at the station, going about with the squatter and the men, learning much about sheep. The sheep are kept in fenced fields, hence they do not need shepherds, as do our great flocks on the Rocky Mountain plateau; but it is necessary to have boundary riders, or men who go about the fields every few days to see that the fences are up and that the sheep are all right and have plenty of water.

At a neighboring farm, forty miles away, we watch the sheep being sheared. A large gang of men does this work. They travel from station to station and carry their own cook and food. The shearers cut off the wool with machines worked by steam, compressed air, or electricity. The cutting is done by little knives moving back and forth like the knives of a mowing machine. The knives are in a frame

that is pressed against the wool, cutting it more easily and smoothly than by hand. The power is carried through a long tube like that which a dentist uses for his drill.

The wool is next sorted and packed into bales like those we saw at Sydney. It is then loaded on motor trucks, which carry it to the railway station. In some places the wool is



Hauling wool by oxcart to the railway.

hauled by tractors and in others by wagons pulled by bullocks. There are often eight or ten animals to a wagon, and sometimes the trip to the railway takes several weeks.

We are delighted with the life at the station. We thought it would be quiet so far off in the country, but every moment is filled with riding and motoring and games. The squatter's sons think nothing of riding ten miles to play cricket, and his daughters often motor twice as far to a party or to spend the night with a neighbor. They learn their

lessons from private teachers, as there is no school near enough for them to attend.

We must remember, however, that this is one of the richest of the sheep farmers, and that his lands are among the best in Australia. The smaller farmers often have as hard times as do our small farmers at home. All suffer when the weather is dry, some parts of the continent being subject to frequent droughts, during which the sheep die by thousands for lack of water and food. The droughts clear the land of everything green. The pastures become as bare as a road, and the sheep stagger about, nosing in the dust for the seeds of grasses and trees. Their owners often have to sit by and watch them die, knowing they can get nothing to feed them. Poor squatters have been known to go crazy because rain failed to come to the relief of their starving flocks.

Imagine what it would be like if all the United States from New York to San Francisco had no rain, and there was no green except on the mountains and in parts of New England! Then you will have some idea of conditions in Australia during one of the worst droughts, which occurred about twenty years ago. At that time sixty million sheep and four million cattle died from starvation. Dead kangaroos and rabbits were found by the thousands, and even the birds dropped lifeless from the trees.

Australia has several large lakes, but most of them are too salty to furnish drinking water for live stock. The only large river system is the Murray-Darling, which flows between New South Wales and Victoria, and then crosses the southeast corner of South Australia. Some of the finest sheep stations are situated in its basin. This river, together with other smaller streams, is now being used for irrigation during dry seasons. Several dams have been built to store the water.

The evils of the droughts are now avoided also by artesian wells, which are being sunk by the government in many parts of the continent. Although the surface of the land is almost a desert, vast reservoirs of water have been found far underground. Some wells are several thousand feet deep, and a single one often yields more than a million



A settler's home in an irrigated region.

gallons of water a day. The water is sometimes hot when it comes forth, but it soon cools. It has a salty taste, but the sheep drink it and thrive on it.

Another enemy of the sheep farmer is the rabbit, which is found in vast numbers in many parts of Australia. These little animals eat the grass required for the sheep, and on the large stations men are kept to do nothing else but hunt and trap rabbits, a single man sometimes killing four hundred in a day. Many sheep farms have fences of wire



An artesian well.

netting about them to keep out these pests, and some of the states have built hundreds of miles of rabbit-proof fences along their frontiers.

Some of these fences even go across the roads, and as we ride through the country we have to stop often and open gates. In many places we see long rows of rabbit carcasses hung up in the air, and are told that they will be frozen and

shipped abroad. The skins of the rabbits are exported to other countries, to be used for trimming women's coats, the fur to be used in manufacturing felt hats.

1. How does Australia compare in size with the United States? With Great Britain? With the other continents of the world?
2. Trace on the globe two routes by which we can go from the United States to Melbourne. Through what bodies of water do we pass? How far do we travel?
3. What region is the most important part of Australia, and why? With what part of Africa might the interior of Australia be compared? (See Carpenter's "Africa.")

4. Name the states of Australia and their capitals. Which is the largest? Which state is an island?

5. What is the seat of government of Australia? The chief city? Why is a new capital being built, and what is its name?

6. What are the chief minerals of Australia? Where are they found? How do the outputs of gold and silver and copper rank with those of other countries? (See tables.)

7. Name the principal sheep-raising countries. How does Australasia rank among them?

8. Trace a bale of wool from a sheep farm in Australia to a woolen mill in England. How is it taken to the railway? From what city is it exported? Over what waters is it carried? What city in England is famous for its wool manufactures? (See Carpenter's "Europe.")

VI. QUEENSLAND

TODAY we are on a train going from Sydney to Brisbane, the capital of the state of Queensland. The two cities are about as far apart as the distance from New York to Cleveland. When we reach the boundary between the two states we have to change cars. This is because the railways of Australia are owned by the states, and each state has tracks of a different width. The lines in New South Wales and the transcontinental railway across the continent are the only ones of standard gauge. This means that, except on the transcontinental road, no trains can be run from one state to another, and at every boundary passengers and freight must be transferred. In going from Brisbane to Perth in Western Australia one must change trains five times because of differing track widths. Imagine what it would mean in the United States if passengers and freight had to be moved from one train to another every time a state line was crossed!



Children of ranchers in New South Wales and Queensland help to watch the herds of fine cattle.

In New South Wales we see many fine farms on which are great herds of cattle and flocks of thousands of sheep, and in Queensland we pass through a vast region of rich land known as the Darling Downs, where we travel for miles across green fields as flat as a floor. Here also fat sheep and sleek cattle are grazing. On the plowed lands the soil looks black and velvety. We cross fields of alfalfa, and again go through large tracts where the green blades of wheat are just poking their tips up through the dark earth.

In many places we see the farmers clearing cactus from the land, for this prickly shrub has overrun and ruined vast areas of good farming land. It was originally brought here by an Englishman, who thought it would make good hedges between the fields; and, like the rabbits of this country, it has got beyond the control of the farmers. It spreads over the land at the rate of a million acres every year, and now covers more land in Australia than the total area under cultivation. The people are spending large amounts of money trying to find a way to destroy cactus, and they fight it by cutting it down, burning it, spraying it with poisonous chemicals, and breeding insects that will destroy it.

Most of the farmhouses that we see from the car windows are one-story buildings roofed with iron. We notice that many of them are set high up on iron piles capped by iron saucers with the rims turned down, much as our farmers at home protect their granaries from rats. These upturned saucers are used to keep out the white ants, which will eat almost any wood they can get. Building the houses on stilts also allows a circulation of air under them, thus cooling the floors.

About two hundred miles before we reach Brisbane we pass through the city of Toowoomba, which is high up in the mountains that border eastern Australia. In summer it is

much cooler than it is down near the coast, and many of the people of Brisbane come here during the hottest weather. We find Toowoomba full of farmers and ranchers who have ridden or motored in from the surrounding country.

Brisbane is a fine city, eighteen miles from the mouth of the Brisbane River; but the stream is deep, and there are ocean steamers at anchor right in the business section. The city is the fourth in size on the continent, ranking next to Sydney, Melbourne, and Adelaide. What handsome public buildings it has, and what beautiful flowers and shrubs! In the city many of the residences are large and costly, but out in the suburbs the most common type of house is the one-story bungalow roofed with corrugated iron. As in Sydney, the streets are paved with wood.

It is very warm, and we are glad to keep under the awnings as we make our way from store to store. We visit the public buildings and the mining museum, where we learn much of the resources of this part of the continent. Queensland is the second largest state in the Commonwealth, and is bigger by half than all our Atlantic states put together. Although parts of it are desert, it has rich farms and pastures and deposits of metals and precious stones. Along the Brisbane River we find several meat-freezing plants, one of which belongs to a Chicago company. In central Queensland are vast ranches. This state leads all Australia in the number of its cattle.

The largest herds of cattle range over great unfenced areas in the interior of the continent, known as the "Never-Never Land." They are gathered together once a year for a round-up, or "muster," as it is called here. Some of the ranchers are so far from a railway that they use airplanes for flying to the cities along the coast. Airplanes are used also to transport mail and passengers here and in other parts of



Queensland raises many tropical products. Above, workers cutting sugar cane; below, picking ripe cotton.

the continent. One air line has its headquarters in Western Australia, and another in Melbourne.

Every state in Australia now has its slaughter houses and meat-packing plants, and much tinned and frozen beef is shipped to the British Isles. In southern Queensland, as well as in New South Wales and Victoria, there are large dairy farms where butter and cheese are made.

Although southern Queensland has the crops and climate of the temperate zone, the northern part of the state is not far from the Equator. Sugar, cotton, tobacco, and tropical fruits thrive there. In the markets of Brisbane we see bananas, pineapples, and coconuts that have come from there, also several fruits that are strange to us. We ask their names and are told that they are mangoes, guavas, and custard apples. We find also apples and pears, and learn that Australia raises all the familiar fruits we have at home, such as plums, peaches, apricots, oranges, lemons, grapes, and berries of many kinds.

Fresh fruits from Australia are sent to New Zealand, the Philippines, the United Kingdom, Canada, and even to the United States and Egypt. Nearly all the pineapples go to New Zealand. As for sugar, for years Queensland has produced enough to meet the needs of all Australia. The cane is crushed in mills near the plantations, and the juice is sent to Sydney and Melbourne to be refined. Cotton is grown in small amounts only, but it may be that some day Queensland will supply all that Australia needs.

We have already learned about the gold mines of Queensland. The state is also a treasure house of other valuable minerals and of precious stones. It has deposits of copper, lead, iron, bismuth, silver, and tin. Some of the finest opals and sapphires in the world have come from here; and there are deposits containing diamonds, emeralds, turquoises,

topazes, and garnets. The gems are not mined by a company or syndicate, as are the diamonds of South Africa, but every man works for himself and owns what he finds.

VII. THE GREAT BARRIER REEF AND THE PEARL FISHERIES

FROM Brisbane we are about to begin a long sea journey that will almost encircle the Australian continent. We begin by steaming down the river through Moreton Bay and out into the Pacific Ocean, and then start northward through one of the most remarkable waterways of the world. This is the channel that lies between the mainland and the Great Barrier Reef, a rocky wall of coral that has been built up for more than twelve hundred miles along the northeastern coast of Australia.

How smooth the water is! We cannot realize that we are on the ocean; we seem to be in a mighty canal one side of which is the rocky continent of Australia and the other this vast wall built up from the bottom of the sea by countless millions of coral polyps (pöl'îps).

The coral wall is from ten to seventy miles wide. In some places it just reaches the surface and cannot be seen except at low tide; in others it rises above the water in ridges and ragged rocks, sometimes forming gardens of pink, red, and white flowers, all of coral. Here real plants and trees have sprouted out of these stony gardens, and there the coral has been built up in great horseshoe rings with water inside them. Such rings are called atolls (â-töls'). Coconut trees, green grass, and beautiful flowers grow on them, forming emerald rings surrounded by and inclosing the sapphire sea.

The Great Barrier Reef runs through the Pacific Ocean at a distance of from five to fifteen or more miles from the coast. At Rockhampton, where we first see it, the channel is about one hundred miles wide, but a little farther north it narrows, giving us quiet waters through which our steamer plows its way.

How delightful the journey is after our thirsty travels on land! The sun is hot, but the soft, cooling breezes of the



Coral gardens in the Great Barrier Reef.

Pacific come to us over the atolls. The air is as clear as on our Rocky Mountain plateau. The sky is a light blue with a few clouds that make patches of velvet of a deeper blue where their shadows fall upon the dreary gray mountains of the mainland. The land reminds us of the Rockies, for Nature here is much the same as in Arizona and Nevada.

Our first stop is at Townsville, a little city built at the foot of bleak and bare hills. It is not unlike one of our western

mining towns, save that it has more schools and more pleasure grounds. It is the chief port for the Charters Towers and other gold regions and for the rich pasture lands behind it. How hot it is here! The people are dressed in light clothing. The children go barefooted and wear straw hats as big as parasols.

We steamed across the Tropic of Capricorn at Rockhampton, and we are now in tropical Australia. It will grow hotter and hotter as we go farther north. On our continent the north lands are cold and the south lands hot. Why is this not so in Australia? Look at your map. Australia lies south of the Equator, and its northern parts get the more direct rays of the sun.

At Cairns (kārnz), still farther on, we visit sugar and tobacco plantations, and we enjoy the bananas and pineapples that are raised there for export to Sydney, Melbourne, Adelaide, and other cities of the south.

Calling at Cooktown, a pretty place at the foot of Grassy Hill, which rises more than five hundred feet above it, we walk up Charlotte Street to visit the monument on the spot where Captain Cook beached his vessel. Then we steam in and out among coral islands along Cape York Peninsula, a vast barren tract five hundred miles long. On much of the coast there is nothing in sight but sand, rocks, and reddish brown cones, each of which is the home of thousands of ants. In some places these little ant castles fairly cover the land. Some of the cones are twenty feet high, and each is composed of many cells or rooms rising floor above floor like the flats of a great apartment house. Australia has many kinds of ants, some red, some black, and some white. The white ants are wood eaters and they usually work in the dark, eating the wood of a tree, post, or piece of furniture until only a shell is left.

More interesting to us just now are the little animals, the polyps, which have built up this great coral reef and the coral islands that dot the Pacific Ocean both north and south of the Equator, especially the South Seas not far from where we are now. The coral polyp extracts lime from the salt water, and from this lime its minute coral skeleton is formed. The skeleton remains after the polyp is dead, more skeletons being added, either by its children or by other polyps; and in time, by the work of millions of such little beings, these islands, reefs, gardens and flowers of coral are built up out of the water. It is from lime that all sorts of shells are formed, including those of the pearl oyster and even the pearls.

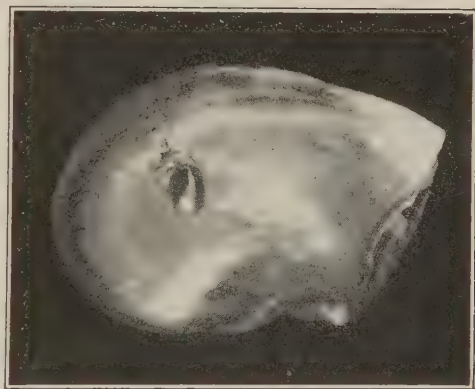
The coral islands and reefs are the favorite living places of this oyster. It will not thrive in dirt, nor in any place where the tide shifts the sand. The pearl oyster fastens itself to the coral formations by a muscle extending out near the hinge of the shell, often selecting caverns in the reef under the water. If undisturbed, it grows to an enormous size, the shells often becoming as large as the largest dinner plate.

Pearls are found inside the shells and often in the flesh of the oysters. It is supposed that each is formed by a grain of sand, a tiny insect, or some other foreign substance getting inside the shell. This scratches the oyster, which at once begins to make a covering for it. The oyster throws off more and more carbonate of lime, painting the substance again and again until it becomes a smooth ball.

A pearl cut in two and put under the microscope shows layers like those of an onion, and often a little hole in the center where the offending grain of sand or other substance was. Pearls are not always round, often being pear shaped or oval. The round ones are the most valuable, the largest often selling for many thousands of dollars apiece. The

commoner, small, imperfectly shaped kinds bring much less.

The shells of these oysters yield more money to the gatherers than the pearls themselves. Many oysters have no pearls, and in some the pearls are so small that they are almost worthless. But all oysters have shells, and the shells are of value in commerce. They are used for making buttons, knife handles, and other beautiful things. They are in such demand that men go out in boats to the coral reefs and islands about Australia and in the South Seas and dive for them. They gather thousands of tons every year. The shells are sold by the natives to traders who



An oyster shell containing pearls.

go from island to island, often offering tobacco, calico, knives, glass beads, mirrors and other goods in exchange.

Some of the best pearl oyster waters about Australia are off the northeastern coast in the very seas where we are now. We meet fishing boats as we steam northward, and after rounding Cape York into Torres Strait, we land at Thursday Island, one of the headquarters of the pearl-fishing industry. Several fishing schooners lie at anchor inside the harbor, a steamer bound for Europe is taking on a cargo of shells, and pearl divers by the score are among the crowd that meets us as we step upon the pier.

On the map Thursday Island is only a speck, but it is important because it is at one of the crossroads of the sea. Ships from India, China, and Japan stop here for coal on their way to and from Australia, and we find people of almost every race in this part of the world. There are black men, brown men, and yellow men; some from Malaysia, some from China and Japan, others from the neighboring islands. There are also whites, for the island belongs to Queensland, and its magistrate is an Australian, as are also the soldiers in the barracks near by.

We stroll through the town, visit the warehouses where the shells are stored, and later go out and watch the pearl fishers as they dive after the oysters. The men are clad first in thick flannel, then in diving suits that will keep out the water. Each suit has a metal head-piece with glass at the front, so that the man can see out, and a rubber tube so that fresh air from above can be constantly pumped into the suit. The diver wears boots with heavy soles of copper or lead to enable him to sink, and he carries a canvas bag for shells. Thus dressed, he goes down to the bottom of the sea, and moves about among the pearl oysters. He cuts them from the rocks and puts them into his bag, being careful to avoid the fierce sharks that sometimes follow the boats, and also the great squid, a marine monster with long arms, which vomits a black fluid so discoloring the water that the man cannot see and is likely to stumble against the rocks.

When the divers come up, their bags are emptied. The shells are opened with a thin-bladed knife, not unlike a table knife, and the oysters are taken out. They are carefully examined to see if they have pearls in them; and if not, they are thrown away. This work is watched by the owners of the boats, for otherwise it would be easy to steal a valuable pearl.

Waving good-by to our pearl-diving friends at Thursday Island, we begin steaming westward along northern Australia. The sailors have stretched canvas over the deck, for the tropical sun is terribly hot and the water reflects its rays in a blinding glare. The sea is like glass, and our vessel moves through it smoothly and quietly.

It takes us two days to cross the Gulf of Carpentaria, which cuts almost as deep into the land as the Gulf of Mexico does into the United States. Farther on, we pass numerous green islands inhabited by natives; finally we come to anchor at Port Darwin, the chief city of the Northern Territory.

Although it is twice as large as Texas, the Northern Territory has less than four thousand white people, most of whom live in the small towns along the coast. It has only one railway, a short line that runs inland from Port Darwin. More than half of the territory is wholly unoccupied, and its rich mineral deposits are but little developed. The chief industries are mining and cattle raising.

Leaving Port Darwin, we go westward into Timor Sea, a part of the Indian Ocean, and then southward along the coast of Western Australia. We cross valuable pearl-fishing grounds and pass by Kimberley, where there are extensive gold mines and rich pastures.

The water is smooth, and now and then we see a whale. There are some whales now floating quietly on the sea at our right. They are apparently sleeping. Let us see if we can arouse them by a shot! A sailor picks up a gun and sends a score of bullets at the great monsters. The water splashes up where the balls fall, and at the same time one of the whales raises its head. What a huge creature it is! It is like an island rising out of the water. Now the whales are moving. They divide the waters like a

fleet of ungainly motor boats. Now they have dived, and we see them no more.

As we come closer in shore, huge sharks follow our vessel, and we are careful how we hang over the rail. If we should fall overboard, they would gobble us up in a trice. There are so many in these waters that one of the harbors has been named Shark Bay.

VIII. AMONG THE ABORIGINES

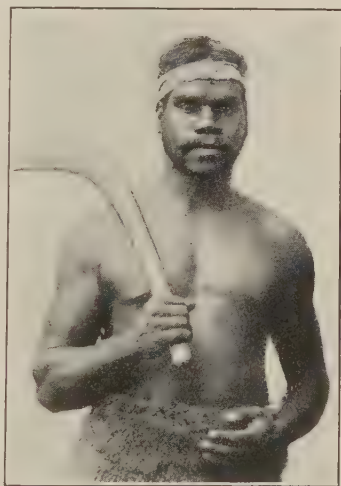
ON our way southward along the coast of Western Australia, we stop now and then at small seaports. Strolling through the streets, we see many half civilized natives, and learn that they come from camps not far away. Western Australia has more aborigines, or native Australians, than any other state. Vast tracts are almost uninhabited except by these people. They were never many in number, and, like our Indians, they have become fewer and fewer, until now less than sixty thousand are left on the whole continent. In Victoria and New South Wales, where most of the good land has been taken up by the whites, there are only a few hundred natives. Between ten and twenty thousand still live in the states of Queensland and South Australia and in the Northern Territory, while Western Australia has about twenty-five thousand. Many of them still live the lives of savages, but others have been civilized and work for the whites. Some are on the police force of the remote interior districts, where they track escaped criminals or men lost in the desert. They are often taken into the desert regions by parties of explorers or prospectors, because they know how to find a certain shrub that has roots containing a liquid that will quench thirst.

These aborigines are said to be the most primitive tribes of the human race. At first sight they make us think of Negroes, but they are brown, rather than black, and their hair is curly, not woolly. Their lips are not so thick and their noses not so flat as those of the Negro. Many are fine looking, having broad foreheads, bold, piercing eyes, straight forms, and deep chests. Others are ugly, crooked, and scrawny. The older men have thick black beards covering their faces and long black hair on their heads, arms, legs, and chests. All have strong white teeth, which show when they laugh.

How queerly they dress! It is only in the settlements that they wear clothes at all, and even here the children are naked. Farther back in the country, a string or so about the waist or neck, and perhaps a coat of fish oil or a little paint, is a full suit for a man or woman.

In other regions where it is colder they have, in the winter, opossum skins tied to their waist belts and thrown over their shoulders.

Each tribe has its own way of dressing and especially of arranging the hair. Some natives bind their heads with cloths, some stick feathers in their hair, and some tie the knuckle bones of kangaroos and kangaroo teeth to their forelocks, so that these ornaments hang down over the eyes. About Port Darwin we saw men who use nose pins ten inches



Australian aborigine.

long. The nose is pierced just under the nostrils, and the pin so thrust through that it stands out on each side for five inches or more. Other natives pierce their ears, using kangaroo bones as plugs.

Notice the scars on the bodies of some of the men, women, and children. These are made for ornamentation, the flesh being gashed with flint or sharp shells. Powdered charcoal is dusted into the wounds, so that after healing, ridges as thick as your finger are left in the skin. There is a man now with scars on his back. Here comes one who is covered with cuts. A parent who is proud of his boy often cuts pieces out of his skin to make him look handsomer!

Many of the native women we see have scars made by their husbands, who treat them as though they were slaves. A woman is thought to belong to her husband, and if he clubs her or cuts her with knife or spear, no one objects. The woman is expected to do the work of the family, from building the house to cooking the food and taking care of the children. She carries the furniture to the new camp when the tribe moves, and there she puts up the shelter of bark or skin under which all crawl in bad weather. She chops her own firewood and often provides the food.

What do these people eat? We are afraid to say, lest our friends will not believe us. They eat anything they can get, from kangaroos or opossums to ants, worms, and snakes. They pick the larvæ of beetles out of rotten trees and cook them in red-hot ashes. They eat lizards of many kinds, especially one that is very large and tastes not unlike spring chicken. They also cook the grasshoppers and locusts, which sometimes swarm over parts of Australia. They throw the grasshoppers into the fire to burn off the wings and legs, and then take them out and cook each insect separately. Such food is said to taste like roasted nuts.

There are certain ants that the natives consider a great delicacy. They like also the young leaves of certain trees, grass seeds, roots, and all sorts of wild nuts and fruits, as well as frogs, fish, and eels. They get honey from wild bees by sticking a little white feather upon the back of a captured bee, releasing it and following it to the hive. Some natives are cannibals, but there are not many such, although explorers say they have found them eating human beings.

These native Australians are excellent hunters and trappers. They are skilled in throwing spears and clubs, especially boomerangs, which are used more as playthings or for killing small birds than for fighting or game hunting.

The natives spear fish, and they catch emus and kangaroos by driving them into nets concealed in the bushes. They make fire by rubbing two sticks together, but as this is not easy to do in wet weather, they seldom allow their fires to go out.

These aborigines are about as low in civilization as any people on earth. Very few of them learn to read or write. They believe in witches, demons, and ghosts; and they think their medicine men can, if they wish, cause one to fall sick or die. They have charms to ward off evil spirits, and they carefully avoid caves and thickets which, as they suppose, are haunted. Dwelling in the depths of the thick forests on their tribal lands, many of these interesting, little-known hunters and trappers are shy as wild animals. Others are somewhat more friendly to strangers. Some tribes believe that the white settlers are natives who have died and come to life again, and that, after death, they themselves will be born again with white bodies.

IX. STRANGE PLANTS AND ANIMALS

THE plants and animals of Australia are just as strange as the aborigines. During our travels in the interior of the continent, we avoid the cities and explore the thinly settled and wild districts. Now we are climbing mountains, and now lingering in valleys bedded with ferns of all sizes. There are fern trees so high we can climb them; and, what is worse, there are nettles much higher. The nettles have light green leaves that sting terribly when we touch them. There are also palm trees and evergreens so matted together that they remind us of a tropical jungle. At times we can hardly make our way through them, even on foot.

Other regions are all woodland. There are miles and miles of great trees with no undergrowth. Most of the forest is of the eucalyptus or gum tree variety, of which there are more than three hundred kinds in Australia. Some gums, like the mallee, are about ten feet high, with trunks no thicker than your finger, and others are among the largest trees known. The gigantic blue gum, for instance, grows three hundred feet tall and six feet in diameter. It is said to reach a greater height than our famous big trees of California.

The taller forests are dreary. The leaves of the gums hang down from the branches as though they were weeping, and the bark is half off. The leaves of some trees never fall, but remain green all the year round. The trees shed their bark instead of their leaves, the old bark hanging from the trunk like disheveled hair, while the new bark is white or silver-gray.

In some places we pass through groves of dead trees that have been ringed with an ax to kill them for clearing. Such

trees have lost their leaves, their bark has dropped to the ground, and their white trunks and branches look like polished bones or skeleton trees. The logs on the ground are white, the stumps are white, and all the surroundings are like those of a graveyard. We feel depressed during



Hauling logs to a lumber mill. Australia has millions of acres of valuable forest, still uncut.

parts of our journey, and do not wonder that some of the interior has been called the "Never-Never Land."

Still, nature is so strange that we are interested every moment. We are always finding new plants and flowers. In northern Australia there are bamboos, palm trees, and tropical jungles. We find beautiful orchids of odd shapes, and a lily known as the "Gigantic," which grows to a height of ten feet and bears an immense dark red blossom. We see also the grass tree, which is like a tall stump that

has sprouted out grass on the sides and top ; and the bottle tree, which has a trunk the shape of a great bottle, with branches and leaves growing out of the cork.



A bottle tree.

The Australian animals and birds are even more interesting than the curious and wonderful plants. This is the land of the marsupial (mär-sū'-pī-āl), or pouch-bearing animals. There are more than one hundred different kinds of animals that have pouches on their bodies for carrying their young. Some of these animals are taller than a man, some no bigger than your thumb. Some climb trees, others

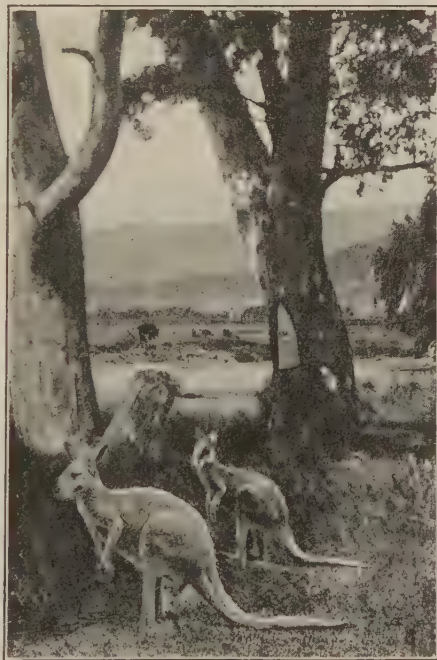
gallop over the grassy plains, still others spend more than half the time in brooks and streams and shallow lakes.

The largest of marsupials are the kangaroos, ranging in size from great gray fellows measuring more than seven feet from nose to tail, down to the family dwarf, the kangaroo rat. We saw specimens of every kind in the zoölogical

gardens of Sydney and Melbourne, and we meet some during our tour through the country, now and then going out on a kangaroo hunt with the squatters.

The red and the gray kangaroos are hunted in most parts of Australia and killed by thousands. Horses and dogs are bred for this sport.

The dogs are a sort of hound, fierce and fleet of foot. The big kangaroo has enormous hind legs that send it flying along as though moved by steel springs. It can leap twenty or thirty feet at a jump, and it fairly gallops over the country. When brought to bay, it is dangerous and will then attack a dog or a man. It usually backs up against a tree, and as the dog comes up, the kangaroo seizes him with his fore paws and hugs him tightly



Kangaroos.

to his breast, while it tears him to pieces with the single claw that it has on each hind foot. This claw is as hard as ivory; it is three or four inches long, and it cuts like a knife. Kangaroos can swim as well as run, and they

take to the water when they can. If a dog follows one, it will seize him, pull his head under, and hold him there until he is drowned.

These animals usually go about in herds. We often see a male and female together, and sometimes spy the head of a baby kangaroo sticking out of its mother's pouch. Kangaroos are tiny when born, some kinds being not more than an inch long at that time. The mother puts her babies into her pouch, and there they live on their mother's milk for eight or nine months, coming out now and then to eat grass, and crawling back when they are tired or at the least sign of danger. They leave the pouch when they weigh about eight or nine pounds, becoming then too heavy for the mother to carry.

Among the most common of the small kangaroos are the wallabies, which are killed for their skins. There is a great demand for kangaroo leather for bags, shoes, and other such things, and much of it is exported to the United States. Australia has also a marsupial bear, and in northern Queensland there are kangaroos that live in the trees like monkeys. They climb about and spend most of their time feeding upon the leaves, seldom coming down except for water.

Among other curious animals of the continent are two little beasts that lay eggs. One of these is the duck-billed platypus (plăt'ĭ-pŭs). The platypus is a sort of water mole, with fur as soft and thick as that of a beaver. It is about twenty inches long, and has a flat head that ends in two jaws shaped almost exactly like a duck's bill. It has webbed feet, so that it can swim. It is usually found along the streams of Tasmania and southeastern Australia, living in little tunnels which it bores from the land down into the stream. In the middle of such a tunnel the platypus makes its home, having one door to the water and another

to the land. There it lays its eggs and hatches them, sitting, it is said, upon the eggs as birds do. The platypus feeds on water insects, shellfish, beetles, and roots.

The other egg-laying animal is the spiny ant-eater, which in size and appearance is somewhat like a hedgehog. This animal has a long snout, and a round, flexible tongue covered with a sticky secretion with which it can lick up ants. It has a pouch in which it places its eggs, carrying them about until they are hatched.

Now and then on our travels we see bats, some so big they are known as flying foxes, others so small they are called flying mice. During our horseback rides through the woods we see dingos, which the squatters shoot at sight, as they worry the sheep and sometimes kill them by hundreds. The dingo is the wild dog of Australia. It does not bark or growl like a good, honest dog. It simply howls. It is a sneaking animal and as cunning as a fox. It is so dreaded by the shepherds that bounties are given for dingo scalps, and these wild dogs are hunted here just as foxes are in England.

The birds of Australia are as strange as the animals. Naturalists tell us that the continent has more than seven hundred varieties of birds found nowhere else. In the woods of the north are great numbers of parrots, some as white as snow, others a delicate pink, and others as red as blood. There are yellow parrots, green parrots — parrots of every shade and tint you can imagine.

One of the most curious birds is the lyre bird, which is found along the east coast of Australia. It has a tail shaped like a lyre. Another is the satin bower bird, which builds up a sort of playground near the tree where its nest is. This playground is sometimes three feet in diameter, consisting of a floor made of woven sticks raised from the

ground. Upon this floor the birds build a little bower of woven twigs. They weave gay feathers in and out of the sticks, put bones and shells here and there about the bower, and collect everything they can to beautify it. When young, these birds are bright green, but when full grown



A cassowary.

the females are green and brown and the males have feathers like shining black satin.

Australia has eagles, owls, humming birds, pigeons, quails, pheasants, and brush turkeys. Along the coast are ibises as tall as we are, with pink legs like pipe stems, long pink necks, and bodies covered with feathers as white as snow, except under the wings, where they are black. There are black swans, pelicans, and wild ducks. There are divers and gulls, as

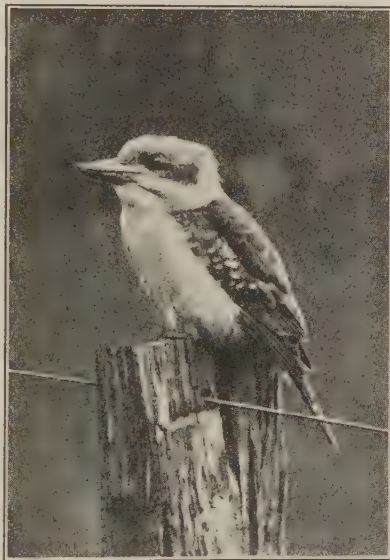
well as swallows, wrens, crows, and robins.

Australia has also some immense birds that resemble the ostrich, although they are not quite so large. The cassowary (căs'sō-wă-ry) is found in Queensland, and the emu is common there and in other parts of Australia. The emu is not so tall as the ostrich. Its legs are shorter, its body thicker and clumsier, and its wings so short that they are

almost invisible when held close to the body. Its feathers, which are much like coarse hair, are dark brown spotted with gray.

Emus are dangerous. They have strong bills, and they bite. They kick somewhat like a cow, and hit so hard that one blow of the foot is enough to kill a dog or a man. The best time for hunting the emu is in the morning when the bird comes out to feed on the grass. It is chased by hunters on horseback with dogs that are trained to catch it by the neck in such a way that they cannot be easily kicked. The squatters are anxious to destroy the emus in order to save the grass for the sheep, and for this reason they not only shoot them but also hunt for their nests and break the eggs. In one county of New South Wales ten thousand emus were killed in nine months, and at one sheep station fifteen hundred eggs were found and destroyed.

Emu eggs are enormous in comparison with hens' eggs, but are much smaller than the eggs of an ostrich. The shells are sometimes mounted in silver and used as milk jugs or sugar bowls.



Australian kingfisher, often called
"laughing jackass."

We cannot possibly mention all of the seven hundred kinds of birds found in Australia. There is one bird, however, that speaks for himself. This is the "laughing jackass," as the people call him. He is a kingfisher with a head almost as big as his body but a voice that is many times bigger than both body and head. When he begins to sing, he coos like a dove and then bursts out into a ha! ha! ha! hoo! hoo! hoo!—a most contemptuous and tantalizing laugh which keeps up until at last we laugh in reply. This bird eats snakes, lizards, and other such things, and for this reason it is protected by law.

X. ON THE TRANSCONTINENTAL RAILWAY — FROM PERTH TO ADELAIDE

WHEN at last we leave our ship at Fremantle, the seaport for the city of Perth, we have sailed completely around the Australian continent since we first touched here on our way to Melbourne several weeks ago. Fremantle is at the mouth of the Swan River, and Perth is twelve miles upstream. The capital of Western Australia is a thriving city of about a hundred and fifty thousand people. It has many red brick buildings with awnings over the streets, and there are good stores, churches, and schools. We ride about it on street cars and in automobiles, and climb Mount Eliza, the great hill at the west of the city, for a look over the surrounding country. From here the Swan looks like a silvery ribbon, and in the distance we can see the Darling Mountains covered with forests.

The next morning we leave Perth for a trip overland across the continent to Adelaide, the capital of South Aus-

tralia. Immediately outside of Perth, we pass through a pretty countryside dotted with little settlements that remind us of the rural villages of England.

There are rich farms, orchards, and gardens in every direction. Parts of this southwestern corner of Australia are quite as fertile as the southeastern part. It has vast



A business street in Perth, the capital of Western Australia.

areas of wheat lands, and in Fremantle we saw huge piles of its wheat in bags, ready to be loaded on the ships. There are great forests of valuable timber, including the jarrah, sometimes called Australian mahogany, and other trees used for shipbuilding. There are also fine pasture lands. This, however, is true of only a small portion of the state. Some distance away from Perth the dry lands begin, and

the greater part of Western Australia is a vast desert of sand and rock.

About a day's ride east of Perth we reach the town of Coolgardie (kōōl-gär'dī), which was the scene of a great gold rush about thirty-five years ago. In the ten years that followed, the miners found more than two billion dol-



Wheat on the docks at Fremantle, ready to be shipped abroad.

lars' worth of gold here. The mines have now been abandoned, but others are still being worked some distance to the eastward at Kalgoorlie (kál-gōōr'li). Gold was discovered at Kalgoorlie the year after the rush to Coolgardie, and the mines there are still paying.

The best gold fields in Western Australia are in the desert. Camels are used by the prospectors to carry their supplies of food and water from one place to another and

to bring the ore to the railroad. There are parts of Western Australia where we might travel for hundreds of miles over nothing but rock and sand more or less mixed with gold.

We are surprised to find camels away off here. There comes a caravan of them now! See how silently and sullenly they move along! We are told that there are twelve thousand of these great ungainly beasts in Australia. They were originally brought here from Arabia, and are now used in many parts of the continent. At the Broken Hill mines in New South Wales they carry supplies to the



Camels carrying freight across the Australian desert.

miners and bring back the ore, and they are employed on some remote sheep stations to take the wool to a railway.

Here at Kalgoorlie, we are on the western edge of the great desert that covers so much of this continent. Most of this vast region is as thirsty as the Sahara. It is only in certain places that rain falls or the vegetation is luxuriant. The greater part of the soil is composed of gray sand upon which the sun beats almost straight down for hours every day during the hot periods of the year. Much of the sand is dotted with bunches of spinifex grass, which would tear our clothes if we tried to make our way through it and which would not shield us from the burning sun. In places the sand has drifted into hills and ridges, in which our feet and those of our horses or camels would sink as we crossed them. In other regions we should run into porcupine

grass, each bunch of which is like a huge pincushion with sharp knitting needles sticking out on all sides. There are vast tracts covered with low trees, also bleak and bare mountains and sandy plains filled with pink, gray, and purple bowlders that seem red hot under the sun.

This desert is one of the driest regions on the face of the globe. Explorers who have made their way through it have brought back strange stories of its terrible heat. One explorer found that the mercury rose in his thermometer until it broke the tube, and that for three months the temperature was more than one hundred degrees in the shade. It was so hot that his hair stopped growing, the ink dried on his pen when he tried to write, his comb split up into hairs, his finger nails became as brittle as glass, and the wood shrank so from the heat that the screws dropped out of his boxes and the lead became loose in his pencils.

This region is so vast that we cannot describe it in detail. On camelback we could travel northeastward for months, if we had any means of sustaining life; but day after day we should find only this same hot, sandy, thirsty land.

Until not long ago, this great desert cut off Western Australia from the eastern part of the continent. It took two months to go from Perth to Adelaide overland, and seven days to go from Perth to Sydney by sea. Conditions were much as they were in our country before our transcontinental railways were built, when travelers to California had to cross our western plains in covered wagons, or else make the long sea voyage by way of the Isthmus of Panama.

Neither Western Australia nor South Australia could afford to build a railroad across this desert to connect the two states, and so the Commonwealth government itself finally began work on a line to join the two ends of the continent. Although this railway is more than a thousand

miles long, the track does not cross a single river or climb a steep grade. Therefore, the engineers had no bridges to build and no hills to cut down or level. Their one big problem was to bring their construction materials and their food and water over the hot sands. This they did with the help of camels, which carried their supplies across the desert. They began the road in 1912, building it from each end toward the middle. Five years later it was completed, and to-day it enables us to go from Perth to Adelaide in only two days instead of the two months travelers once had to spend making the same journey. Another railroad has been proposed which will run through the center of the country across the great desert, from the southern seaports to the northern shore.

At Kalgoorlie we change to a train on the government railway and begin our ride across the great desert. The cars are divided into compartments, and we travel quite as comfortably as though we were in the western United States.

Some distance east of Kalgoorlie we cross the Nullarbor Plain. We saw the southern coast of this plain as we steamed along the Great Australian Bight on our way to Melbourne. It is a vast, empty limestone plateau on which there is not a single water hole. As we stand on the observation platform, we see that the railroad track is as straight as an arrow as far as our eyes can reach, and the conductor tells us that it does not make a single curve in one stretch of three hundred and thirty miles.

At every fifty miles we come to a water tank connected by a pipe line with the great reservoir at Kalgoorlie. There are also artesian wells along the line of the railway, and the water from them is used for irrigation and for the boilers of the locomotives.

As we traverse the Nullarbor Plain, we go from Western

Australia across the border into South Australia. A great part of this state also is desert. Farther east we enter a region of salt lakes and marshes. This is the Great Lakes region of Australia.

Our Great Lakes region in the United States is one of fertile farms, valuable forests, and rich mines. It is dotted



A park in Adelaide, one of the most beautiful cities in Australia.

with cities and villages, peopled by millions of happy men, women, and children. The Great Lakes region of Australia is far different. It has few inhabitants and no vegetation of value. The great lakes here, such as Lake Torrens, Lake Gairdner, and Lake Eyre, all are salt. They are surrounded by flats of treacherous mud that have a salt crust over them so that it makes one's eyes sore to look at them. Lake Eyre is so dreary that it has been called the "Dead Sea of Australia."

At last we have reached Port Augusta, at the eastern end of the transcontinental line. Once more we change trains, and in a few hours we are in Adelaide, the capital of South Australia. It is a thriving city as large as Portland, Oregon, and its people say that it is the most beautiful of all the towns south of the Equator, or as they say, "south of the Line." It is sometimes called the "White City," because of the white stone used for its public buildings.

Adelaide lies on the Torrens River, about six miles by rail from the Gulf of St. Vincent, which is an excellent harbor. We stroll along King William Street, passing the magnificent public buildings of the city and state, and walk through Rundle and Hindley streets, the chief business thoroughfares. The business district is entirely surrounded by a ring of park land, beyond which are the homes of the people. We motor through one beautiful park after another, visiting the bathing beaches and pleasure grounds, and then take a tourist bus to one of the pleasure resorts in the Mount Lofty hills. Here we have a magnificent view of the city and country. On every side of us there are fine farms, gardens, orchards, and vineyards. The wine made here is exported in large quantities. There are



Picking grapes. The country near Adelaide is noted for vineyards.

rich pastures with cattle and sheep feeding upon them, and in the center the white city of Adelaide with the Torrens running on by it until it is lost in the sea in the distance. It is a beautiful view, and we do not wonder that the Australians are proud of this part of their territory.

XI. THE ISLAND STATE OF TASMANIA

ONCE more we are in Melbourne, where we take a little steamer for Hobart, the capital of Tasmania, the island state of the Australian Commonwealth. Tasmania is more than twice the size of Belgium and lies two hundred miles south of the mainland, across Bass Strait. The water is rough as we cross the strait, and our boat rolls on the waves. It is raining, and we have to wear our rubbers to keep from falling on the slippery deck. We are a day and two nights in making the voyage from Melbourne, and when we awake on the second morning, we find ourselves in the mouth of the Derwent River, under the shadow of a great mountain, at the wharves of one of the prettiest little cities we have yet seen.

We are in Hobart, at the southern end of Tasmania, and so far south on the globe that there is nothing but ocean between us and the frozen lands of the Antarctic. How different it is from most parts of the continent we have just left! Instead of gray sand and rock and dreary bush, we are surrounded by green vegetation. There are roses in the gardens, and the woods near the city are full of beautiful flowers.

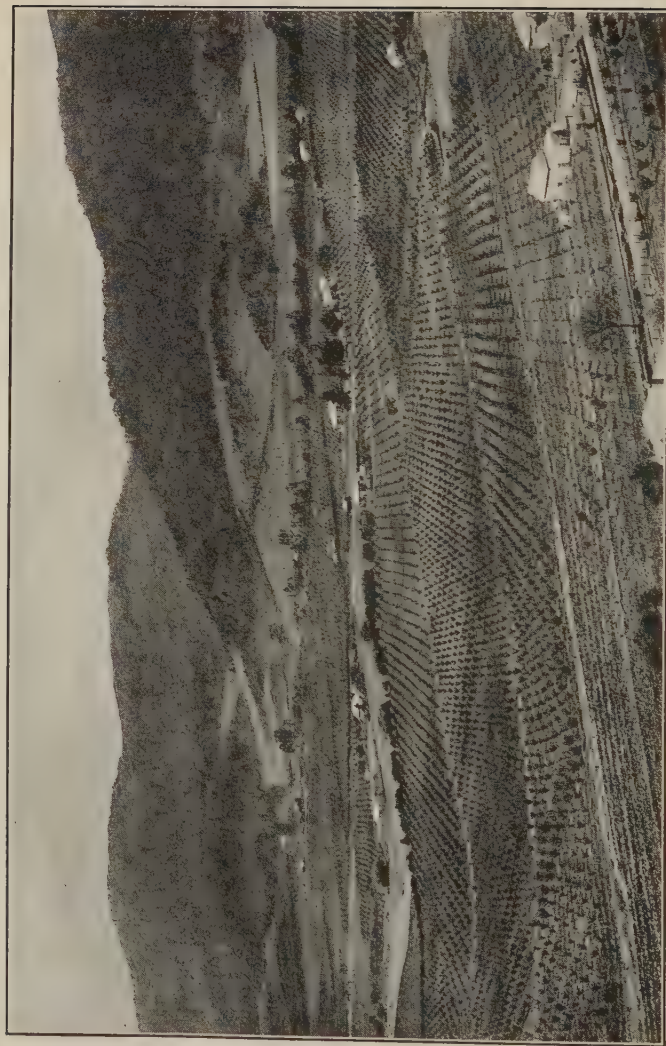
Tasmania has vast groves of fern trees; it has forests of the dreary eucalyptus and also the friendly oaks, beeches, and other trees of our own country. It is well watered.

There are streams everywhere and numerous lakes and waterfalls. It is a land of mountains, valleys, and glens, so beautiful and so healthful that people from all parts of Australasia visit it as Europeans visit the Alps.

There are many tourists in Hobart, and we make up parties for excursions on the railroad, by motor-car, on horseback, and on foot, to different parts of the island. We climb the mountains and have good luck fishing in the lakes and the trout streams. We have a chance to shoot a tiger wolf and a Tasmanian devil, a sort of ugly bear cat. We go from one town to another, spending some time at the tin, iron, copper, silver, and gold mines, and visiting some of the new factories run by electricity generated by the water-power furnished by the lakes and streams. More and more, we are surprised at the good schools, stores, and comfortable homes that these people have here on the other side of the globe.

The natives of Tasmania were once even more backward and undeveloped than the aborigines of the mainland, but now there is not one of them left. The Tasmanians who now inhabit the island are the descendants of the English who settled the country. They are very much like our people at home, hospitable and glad to show us interesting things. We visit their farms, which are noted for rich crops of wheat, barley, and oats, and we motor out to some of the sheep ranches. The land holdings here are smaller than in Australia proper, and the sheep owners can give better care to their flocks. Many of the sheep are worth a thousand dollars apiece and are sold to other parts of Australia and to foreign countries for breeding purposes.

Everywhere we go we find orchards of apples, pears, and plums. There are also strawberries, cherries, and all sorts of small fruit. We have jam every morning at breakfast,



Apple orchards in Tasmania. Much of the product is shipped to England.

and we find ourselves eating apples at all hours of the day. Tasmania produces two million bushels of apples every year, and annually ships several hundred thousand dollars' worth of jams to England, South Africa, France, and the United States.

How would our farmers like to market their fruit sixteen thousand miles away? That is what the Tasmanian farmers are doing. They are sending apples to England in steamers especially fitted with cold storage chambers to keep the fruit from rotting as it goes across the Equator.

That farmer in the orchard at the side of the road is picking apples for the children of England. Think what a long journey each apple must take! Its first trip will be on a truck to the railroad station, and thence by train to Hobart. There it will be put into the cold, dark hold of the ship to start with thousands of others on its long journey across the seven seas. It will go west through the Pacific Ocean for more than one thousand miles before it reaches the southwestern end of Australia, perhaps crossing the track we made when we came from Fremantle. It will then go on over the Indian Ocean, the Arabian Sea, the Red Sea and the Suez Canal into the Mediterranean. It will pass through the Strait of Gibraltar into the Atlantic, and thence to England. It will be traveling on the sea every day and night for fully a month before it again sees the light of day and reaches its English boy buyer.

And the boy, after all, will pay only five cents or so for it. This amount will pay not only the farmer for raising the apple, but the railroads in Tasmania and England, the merchants who handle it at both ends of the route, the sailors who manage the vessel, the miners who dig the coal that makes the steam, as well as some others who have to do with it before it is sold for the English boy's pennies. This



NEW ZEALAND

SCALE OF MILES
0 50 100 150 200

168 172 176

36 40 44 48

PACIFIC OCEAN

TASMAN SEA

North Cape

Hokianga

Wangarei

GREAT BARRIER I.

Auckland

Coromandel

Eden

Grainstown

Waikato R.

Havelock

Tauranga

Bay of Plenty

Ngauruawahia

Hamilton

North Taranaki

Rotorua

Mt. Tarawera

New Plymouth

Mt. Tongariro

Mt. Egmont

Mt. Ruapehu

Hawke Bay

Hastings

Napier

South Taranaki

Wanganui

Palmerston

Woodville

Wellington

Castle Point

C. Palliser

D'URVILLE COAST

Blind Bay

Elson

Blenheim

Mt. Frankton

Westport

Karamea Bight

Greymouth

Westland

Hokitika

Mt. Peterman

Mt. Orokai

Tasman Glacier

Mt. Lyndell

Kaipoi

Christchurch

Lyttelton

BANKS PENINSULA

Ashburton

Canterbury Bight

Timaru

Waitaki R.

Dunedin

Port Chalmers

Invercargill

Bluff

Stewart I.

South Cape

Providence C.

Tasmanian H.

Forster C.

168 Longitude East 172 from Greenwich 176

L.L. POATES, ENGR., N.Y.

could not be done were not millions of other apples shipped the same way, and vast quantities of goods made in England and sent back in exchange. This is one of the wonders of commerce.

1. What two pests do the farmers of eastern Australia fight?
2. Why must one change trains in Australia every time one crosses a state line?
3. With what South American country does Queensland compare in latitude? What products do the two places have in common? (See Carpenter's "South America.")
4. Find Thursday Island on the map. To what state does it belong? What precious gem is found in the surrounding waters, and how is this formed?
5. What strange island formation lies off the northeastern coast of Australia? How was it built up?
6. Tell something about the Northern Territory. What are its industries?
7. What strange people live in Western Australia? Are they increasing or decreasing in number? What are some of their queer customs?
8. What is a marsupial? Are there any in the United States?
9. Find on the map the route of the transcontinental railway. By whom was it built?
10. For what fruit is Tasmania noted? What minerals does it produce? Compare it in size with some of the other islands we shall visit in this book. (See tables.)

XII. NEW ZEALAND

WE are in our first great storm at sea! We had some heavy winds along the southern coast of Australia, and we thought it rough while crossing Bass Strait, but we have had nothing like this! We are now in the Roaring Forties, a part of the ocean so called because of its terrible storms. Our ship has been rolling about ever since we left

Hobart, four days ago; and here, at the southern end of New Zealand, the water is rougher than ever. We hold to the rail and bend to and fro to balance ourselves as we walk. When we sit down, our chairs must be fastened to the floor, and at every meal wooden racks are placed on the tables so that our plates may not slide into our laps. Now and then our coffee spills as we try to drink it, and we have to be careful that our soup does not spatter us and our neighbors.

What a grand sight is the ocean! The dark blue water, tossed up by the winds, is rolling by in vast waves. White-caps are everywhere. We are rising and falling upon green hills dotted with foam and blanketed in places with white. Great billows are chasing one another like race horses over the roads of the ocean; they roar with the thunder of a Niagara.

Now the waves meet and the foam dashes up in a spray which the sun catches and turns into rainbows. The sun is low in the heavens, making the rainbows extend straight out from the ship. They are so close that we can almost wash our fingers in them. They come and they go; they dance in and dance out; they ride, as it were, on the crest of the waves; they shine a moment and then give place to others.

Our ship reminds us of the great floating palaces we have seen on the Great Lakes at home, but it is tossed about almost like a toy. How it struggles and creaks as we strain our way onward! Now the clouds have swallowed the sun, and we are enveloped in mist. The fog horn blows every few minutes. Suppose we should have a collision and go down in the midst of this awful storm!

Now it is night. The wind has increased and the rolling is greater than ever. We tie our trunks fast in the cabins

and hold tight to keep from being thrown from our berths. We are tossed about all night, but the ship struggles onward. At last morning dawns, the sea grows more quiet, the motion decreases, and finally there is none at all. We spring out of bed and look through the portholes. We are at anchor in the harbor of Bluff at the southern end of New Zealand.

Before going ashore, let us glance at the map to see where we are. We are southeast of Tasmania, so far away that our steamer has taken almost four days to reach here. We are more than twelve hundred miles from Australia, and it would take the greater part of a week to steam back to Sydney.

New Zealand, although its people are largely of English descent, is a country in itself with its own government. It is an archipelago of two large islands and many small ones. The chief part of the group is like a great boot, with the sole turned toward the Equator and the toes toward Australia. It consists of North Island, South Island, and Stewart Island. North Island is the foot of the boot, South Island is its leg, and little Stewart Island, opposite where we are now, is the loop through which one puts his finger to pull the boot on.

This boot is about as long as the distance from New York to Chicago, and in one place it is almost as wide as from New York to Boston. North Island is nearly as large as Pennsylvania, South Island is bigger than Michigan, and Stewart Island about one third the size of Delaware. All are mountainous. North Island has active volcanoes, hot springs, and geysers like those of Yellowstone Park, and in South Island are the Southern Alps, which are nearly as grand as the mountains of Switzerland. In the Mt. Cook range there are ten peaks each more than ten thousand feet

high. They are clad in perpetual snow, and on the slopes are glaciers like those of Mont Blanc. The Tasman Glacier is so big that, if it stood on a plain, it would make a wall of ice higher than the highest church steeple, a mile wide and eighteen miles long. The mountains have green woods to



The Tasman Glacier in New Zealand.

the snow line. The glaciers extend through the woods almost to the sea, and when the sun shines upon them, they make us think of great streams of silver incrustated with diamonds.

And then the fiords, or rivers of the ocean, extending into the land ! They are long, narrow, and deep, and surrounded by giant mountains with waterfalls, glaciers, and snow

fields. Milford Sound is twelve hundred and seventy feet deep. Mitre Peak, a mighty snow-capped mountain, rises almost precipitously above it.

New Zealand has a climate like our own, save that it is warm in the north and cool in the south. It is so mild that the grass is green continually. Many trees hold their leaves all the year; some bushes, such as the holly, are always green; and the country has been called an evergreen land. There are curious plants, crawling shrubs, and flowers of all colors. The palm lily grows to a height of twenty feet, shooting out at the top in a great green tassel like the leaves of a palm. There is a vegetable caterpillar, and there is a flax plant that grows wild. It has a tall central stalk surrounded by blades five or six feet long that contain the flax fiber.

Most unusual of all are the ferns. New Zealand has enough ferns to fill the conservatories of the world. In the mountains the glens are walled with them; some are great trees and others are as fine as a maiden's hair. There is one fern that is used by the natives for bedding, and another that is half fern, half vine. It climbs to the tops of the trees, coiling its wirelike stems about the branches. The stems hold their coil after plucking and can be used for bed springs. Think of sleeping on fern mattresses, on fern springs, and you have one of the possibilities of this faraway land.

How about wild animals? Shall we dare go alone through the forests? Yes, for New Zealand has no ferocious beasts, and its natives have become entirely civilized. There are, fortunately, no snakes or other poisonous reptiles, and the lizards are harmless. There are marsupial rats and mice, but no animals as large as the kangaroo.

The birds are most interesting. Swans with feathers of



Parson bird.

night like an owl; and there is a dull-colored one, which fastens its claws into the wool of a live sheep and tears its side open with its powerful beak so that it may get the kidney fat of which it is fond. This is the kea (kā'ā) parrot. It has killed great numbers of sheep, and for this reason is hunted by the farmers. The only place where its life is safe is at the bird sanctuary on the slopes of Mt. Cook, where it is against the law to shoot it.

New Zealand has another bird that is found nowhere else. This is the kiwi (kē'wī), the famed bird without wings. It is about as big as a common chicken, with brown lacy feathers and a

velvety black float on the lakes. The black parson bird, which has white feathers at its throat, like a minister's white necktie, sings in the bushes. There are wild ducks and wild parrots of different kinds. One is a green parrot, which prowls about at



Kiwis, curious birds without wings.

long, sharp bill with which it can dig down into the earth for worms. The kiwi is almost blind in the daytime, but it sees well at night. It lives in the fern beds, and, when hunted, it hides in crevices of the rocks.

The kiwi is supposed to be the last of the many wingless birds that New Zealand had in past ages, at which time there were some twice the size of the biggest ostrich. One species of this kind was the moa (mō'ā), which grew so tall that, did it live now, it could not stand upright in an ordinary schoolroom. It laid eggs as big as a football, with shells as thick as the cover of this book. The skeletons and eggs of such birds have been found, and we can see some in the museum at Christchurch, where we shall stop on our way north.

XIII. THE SOUTH ISLAND — A LAND OF MUTTON AND BUTTER

WE take the train at Bluff and go northward along the eastern coast of the South Island. The land is rolling, with valleys and plains. Now the mountains are far off on our left, now close to the sea. We ride for miles through fields divided by green hedges or by wire fencing. Some contain meadows on which fat sheep and cattle are feeding, and some are planted to crops. We see farm implements like those the farmers use at home. The farmhouses are small wooden buildings roofed with galvanized iron. There are no barns, for the animals can graze out of doors all the year round. Here and there is a haystack covered with thatch. Some of the horses have blankets to shield them from the rain.

We pass through small towns not unlike those of our

country. Nearly every house has a garden about it, separated from the street by a green hedge. We stop off a day at Dunedin (dŭn-ē'dīn), a thriving city populated almost entirely by people of Scotch descent. It lies near a region

where the land has been irrigated to make it produce large quantities of grapes, peaches, pears, and nectarines.

From Dunedin we go northward to Christchurch, a larger and more important city. It is seven miles from the east coast, with which it is connected by a railway tunnel through the mountains and by a carriage road over them. There are many fine motor roads in this region, and the



Route map of New Zealand.

streets of Christchurch are thronged with automobiles.

Suppose we hire a car and go for a ride out into the country. How rich the land is, and how fat the cattle and sheep we pass on the way! We thought the farms good on our way to Dunedin; but we are now on the Canterbury Plains, the richest part of New Zealand and one of the best sheep lands on earth.

New Zealand has a third as many sheep as Australia. The sheep here are different, however, from those in Australia, where the climate and grasses are suited for making fine wool. The moist air and rich vegetation of New Zealand are fine for mutton, and the sheep here are reared as much for their meat as for their wool, their carcasses being frozen and sent in cold storage to England. New



A valley in the South Island of New Zealand.

Zealand leads all countries in the amount of mutton it produces. It rears millions of sheep every year for the people of England, and has a fleet of steamers always moving back and forth across the waters to and from London. Some of the ships go around South Africa, some through the Panama Canal, and others through the Isthmus of Suez and across the Mediterranean Sea to Europe. The distance is great, but so many sheep are shipped that New Zealand mutton can be sold at a lower price in London than mutton pro-

duced in England itself. All together, New Zealand exports annually frozen mutton and wool each to the amount of about fifty-five million dollars, to say nothing of millions of dollars' worth of tallow.

It is a common expression that you cannot get blood out of a turnip, but the New Zealanders know how to do so — that is, indirectly. Indeed, the delicious mutton chops we have at the hotels come from turnip-fed sheep. All the way from Bluff we passed turnip fields.



Sheep in a turnip field.

In some the sheep were eating the leaves, and in others they appeared to be playing ball, the cropped-off-turnips looking like thousands of new baseballs scattered over the black ground. After the turnip leaves are consumed, the sheep

eat the white roots. They dig them out of the ground and bite away until nothing is left. Some farmers dig up the turnips and bury them in pits or mounds, to be used when the grass becomes scarce.

Christchurch, where we are now, has great meat-freezing factories in which the mutton is prepared for market. We drive out to an establishment in which about five thousand sheep are killed every day during the season. The sheep are enticed into the factory by several old decoy sheep,

which are kept to lead the herds to slaughter. The decoys start the procession, and the thousands behind follow them up the roadway to the killing rooms, where the decoys are sent back for more.

The sheep are killed and dressed, and then frozen for shipment to England. We go with the manager into one of the freezing rooms. The temperature is not far from zero, and the walls are coated with frost. Carcasses of mutton hang in long rows from the ceiling. There are thousands of them here in this room. They were put in here three days ago, and they are already frozen as hard as so many stones. Strike one with your pencil. It sounds like a tap on a drum head. Take down a carcass and rest it on the floor. It is so stiff that it stands alone. It is now ready for shipment, and needs only to be inclosed in a bag of white cotton before starting on its long voyage to London.

A few moments later we ride with a trainload of mutton to the steamer and watch the men slide the meat down chutes into the hold of the ship, which is almost as cold as the freezing room. It is kept so by refrigerators, and the mutton is still frozen hard when it is landed in England.

Sheep raising has been for a long time the chief industry of New Zealand, but in the last few years it has had a close rival in dairying. We have seen herds of fine dairy cows everywhere in the South Island, and have passed many cheese and butter factories. The butter annually exported from New Zealand is now worth more than the frozen mutton, and practically as much as the wool. Butter and cheese go from here not only to Great Britain, but to Canada and to the United States as well. Together, they are worth almost eighty million dollars a year. We can hardly imagine such a vast amount !

XIV. THE NORTH ISLAND — HOT SPRINGS AND
THE MAORIS

TO-DAY we are in Wellington, the capital of New Zealand. How the wind whistles around the corners and rushes along the streets! The hills behind the city



Our ship at the wharves at Wellington.

give it but little protection, and we seem to be in the cave of Æolus, the god of the winds. Wellington is situated on the North Island at the lower end of Cook Strait, which is so windy that it has been called the Windpipe of the Pacific. Were it not for the excellent harbor, ships could not land; and even as it is, great wooden docks have been built to protect them.

Wellington has well-kept streets, fine public buildings, excellent stores, and comfortable houses. The store signs remind us of those in Australia. Here also there are awnings built out over the sidewalks in the shopping section. Many of the awnings are of wood, which is the building material for much of the city. The newer office and public buildings are of native stone. Outside, in the suburbs, there are many houses of the bungalow type, each surrounded by flowers and green lawns. Nowhere in the city do we find hovels or slums.

It is in Wellington that the New Zealand parliament meets, and here live the chief officials of the country. New Zealand is a separate British dominion, just as Australia and Canada are, and as such it has a governor-general appointed by the King of England. This official, however, has not much power; the people make their own laws and elect those who see that they are enforced. Nevertheless, they are loyal to the customs of their mother country. They are fond of sports, and everywhere we go we see them playing football, tennis, golf, or hockey. They have polo games, and nearly every one goes to the races. Although they celebrate Christmas amid flowers and warm weather, they always have their English plum pudding. They do not have to fight for England unless they want to, but during the World War they sent thousands of men to aid the British Army. These soldiers, and those of Australia, were called Anzacs, a word formed by the first letters of their official name -- Australia-New Zealand Army Corps. April 25th is now a national holiday known as Anzac Day, in honor of the New Zealanders who were killed in the War.

In New Zealand every one votes, women as well as men. In fact, this was the first country in the world to give suffrage to women. The telegraphs and railroads belong to

the government, which does everything it can to help the people. It gives low rates on the railroads to laboring men, school children, and school excursions. There is a government savings bank at every post office, and when poor people become too old to work, the government gives them a pension.

We must not think, however, that the New Zealanders are generally poor. They are about as well off as any people on earth. Their cities are modern and prosperous, with good schools, theaters, libraries, moving picture houses, clubs, and sports and recreation grounds. Their country is one of many resources. It has rich wheat farms, stock farms, and dairies. It has woolen mills and other factories. Coal and iron are found in the mountains, and gold in places along the sea.

New Zealand is rich in fine timber, including the kauri (kou'ri) pine, a magnificent gray-barked tree found in the North Island. It reaches a height of from eighty to one hundred feet. The kauri is used for building and cabinet work, and the finest varnish is made from its gum. The best kauri gum is like amber. It lasts after the tree dies, and great lumps of it are found in the swamps wherever forests have been. Thousands of men go over the country with spears and picks hunting it. They thrust their spears into the earth to find where the lumps are and then dig them out. Within a half century about fifty million dollars' worth of kauri gum has been sold.

We leave Wellington by sea, steaming out through Cook Strait, and then along the shores of the North Island to New Plymouth, where we anchor under the shadow of Mount Egmont, one of the most beautiful of the New Zealand peaks. It is an extinct volcano almost cone shaped, its lower slopes clad with green forest and its top hidden under perpetual snow. We do not try to climb it,

but go on with our steamer to Auckland, the largest city of New Zealand. It is about the same size as Richmond, Virginia, and lies on an isthmus at the foot of Mount Eden. It is not far from the mouth of the Waikato (wä'ë-kä'tō) River, the chief stream of the archipelago.

Let us climb the mountain for a bird's-eye view of the country. How beautiful it is! The sea, spotted with green islands, stretches away on both sides of us as far as our eyes can reach. Just below lies Auckland, its streets filled with traffic and its harbor with shipping from Australia, Great Britain, South Africa, San Francisco, the Fiji Islands, and other parts of the Pacific Ocean. Behind the city and north and south of us are rich farms and gardens, and away off in the distance are volcanic hills and mountains covered with woods.

The hill on which we are standing is a dead volcano, and we are on the edge of a crater about sixty feet deep. It is quiet now, but from this place once burst forth steam, ashes, lava, and red-hot stones. Almost the whole of this island is volcanic, and it is now only a few years since a mountain, not more than a day's ride by train from where we now are, burst open and sent forth a volume of ashes and mud that destroyed the villages about it, just as Vesuvius destroyed Pompeii centuries ago. A lake near the mountain was blown out, and a roaring crater, which sent up columns of steam to a height of three miles, took its place. The earth broke open, making one crack nine miles long. The sun was so hidden by ashes and dust that it became dark at midday, and there was a rain of hot water, boiling mud, and red-hot stones. That volcano is Mount Tarawera (tär-ä-wër'ä), situated in the Hot Lake district. It is quiet now, although the whole region about it is always more or less dangerous.

We leave Auckland on the railway and ride southward all day long through farms where cattle and sheep are grazing. The country is rolling and there are numerous streams. It makes us think of the blue grass lands of Kentucky, except where the soil has been turned up for planting. In such places lumps of lava are scattered over the fields, and in others they have been gathered up and made into fences. The lava increases as we go farther south, until at last we come into the Hot Lake region, a tract about one hundred miles long, that contains two million acres.

The earth rumbles and grumbles as our train passes over it. Steam is oozing out of the ground on each side of the track, and we tremble lest the crust may break and drop us into the bubbling, boiling, seething mass that lies apparently not far below. We pass the village of Koutu (koo'tū), which is almost hidden in steam, skirt a great lake with jets of steam bursting forth from its banks, and stop at last at Rotorua (rō-tō-rōō'ä), the chief town of New Zealand's hot springs district.

Here there are hotels and numerous cottages. People from all parts of the southern Pacific come to bathe in the springs for their health, and there are great bath houses containing pools of hot, bad-smelling water.

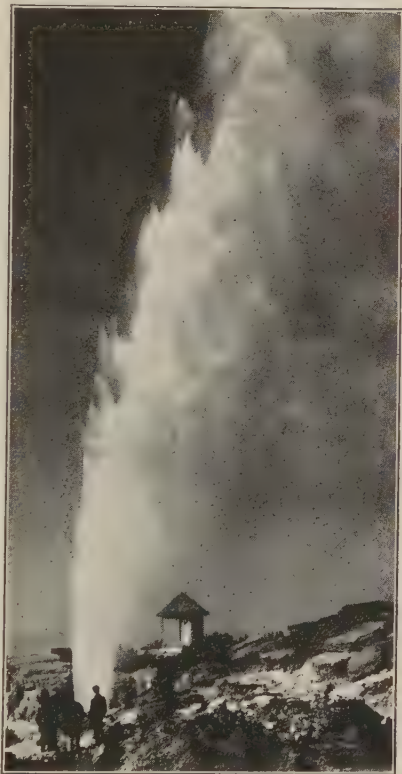
We leave our baggage at the hotel and go with a guide on foot and on horseback from one wonder to another. Here are geysers of steam and water. Here is a pool of boiling, bubbling mud, which now and then shoots a column high into the air. Here is another that is always sending up what looks like paint. Everywhere the earth is steaming. We step over steam cracks, and, staffs in hand, follow our guide through volumes of steam so thick that we can hardly breathe.

Now we have left Rotorua and have come to Tikitere

(tī-kī-tě'rě), twelve miles away. We tie our horses and go through the steam to where a score of great pits are sending up boiling water and mud. Look down into that whirlpool on your right! The water is black, and it steams and bubbles and spits. Be careful! If your foot slips, you may fall in and be scalded to death!

Let us go on. What a vile odor comes up with the vapor out of that pool at our feet! It has a rim of bright yellow, and its smell is like sulphur. That is a sulphur pool; we can taste the brimstone as we stoop over it. It seems full of boiling mud, and we can hardly see down through the steam.

Now the ground has changed from yellow to white, and it looks like salt. We pick up a bit of the earth and taste it. How it puckers our mouths! It is as though we had bitten into an unripe persimmon. The stuff is not salt; it is alum. There are bushels of alum mixed with the other minerals



A geyser in the Hot Lake region.

that come up from the springs. Some pools send up clouds of steam that smell like camphor, and others throw up mud or water in which are salt, potash, and various acids.

Some of the springs are cooler than others and just right for bathing. They cure rheumatism, gout, sore throat, and various skin diseases. They were used long ago by the



A rest-house near Rotorua. It is designed after a Maori native house.

native New Zealanders, and now the English have erected bath houses over them and built swimming pools. The Blue Bath, for instance, is as big as a city lot, and so hot we gasp for breath as we let ourselves down into it. The Coffee Pot Bath contains a hot, thick, brown fluid, covered with an oily scum, good for rheumatism; and the Pain-killer and others are supposed to take away pain.

There are many Maori (mä'ō-rī) children bathing in the pools outside the bath houses. The Maoris are the native New Zealanders; they have homes in this region, living here that they may have heat without the trouble of making a fire. They build their cabins near the boiling pools, and cook their meals with the steam coming up through the



Maori women cooking their meals over steam holes in the earth.

earth in their backyards. Each woman has a steam box of her own sunk in the earth over one of the little steam holes or on one of the pools. The box has slats on the bottom. The food is placed on the slats, a piece of carpet or bagging is thrown over it, and the steam coming through does the cooking. Meat, eggs, and potatoes are steamed in this way, and in late years even Christmas plum puddings are thus cooked on these little volcanoes.

We are interested in watching the natives and learning about them. They are far more intelligent and more civilized than the Australian aborigines, and a finer people in every way. They have brown skins, high cheek bones, and noses much like our own. The men are tall and broad



A Maori girl.

shouldered, with big hands and feet. The women are often good looking, although we see one or two old ones whose foreheads, chins, and lips are tattooed blue and red. In former times both men and women went almost naked and tattooed many parts of their bodies. Since the English came, the natives have adopted our clothing, and tattooing has been abolished.

When Captain Cook landed in New Zealand, there were many Maoris. They were divided into tribes, each having its own priests, chiefs, middle classes, common people, and slaves. They had their own religion and language. The men were fishers and hunters, and the women took care of the houses, made the clothing for the family, and worked in the fields. Some were cannibals, and the different tribes were always at war.

Since the Maoris were conquered by the English, nearly all have become Christians. They have their own schools, and live in villages on reservations, most of which are in the North Island. They are governed by chiefs, but are also subject to the laws of New Zealand. As we go among them, we see some of the old tribal customs, such as rubbing noses at meeting, instead of shaking hands as we do. We are shown a beautiful cloak of kiwi feathers made by a Maori woman. Near one of the tourist hotels we watch a native dance performed by men, for our entertainment.

Many of the Maoris now hold important positions in official life in New Zealand, some having been elected to Parliament. During the World War they sent an entire native battalion to the front.

1. Of how many islands does New Zealand consist? Which is the largest? In which island are the highest mountains? In which are the volcanoes and hot springs?

2. How does New Zealand compare with Australia in the number of its sheep? With Argentina? With the United States? What are the chief products of the sheep industry here? Name the other important exports.

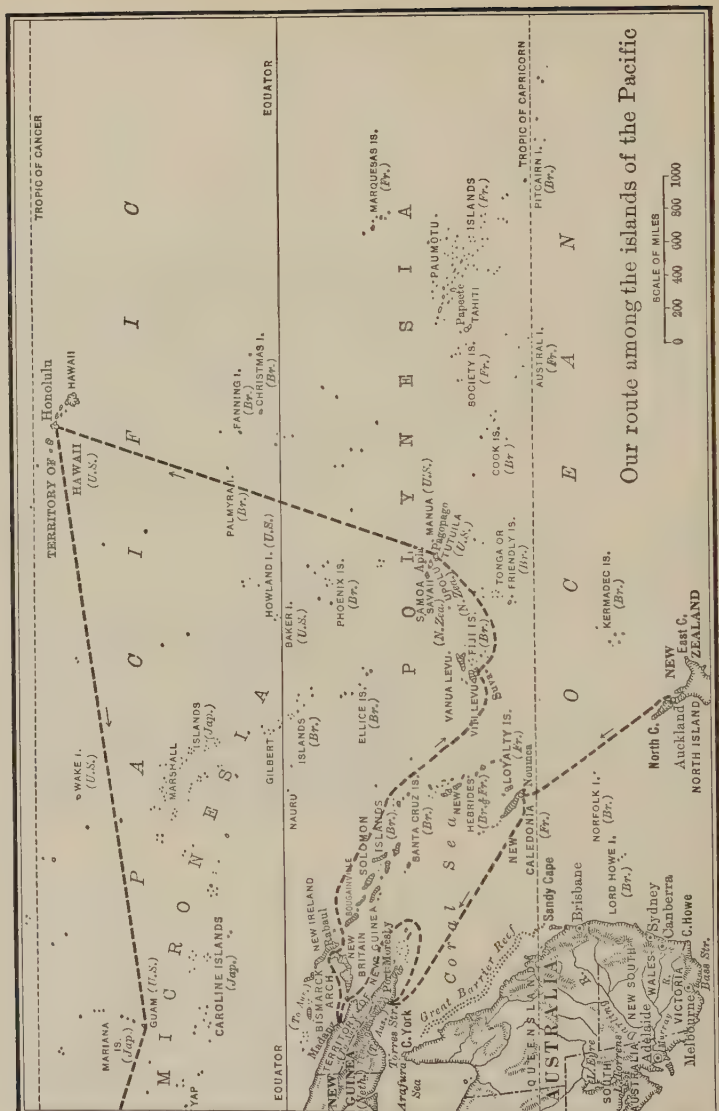
3. What form of government has New Zealand? What other parts of the British Empire have similar governments? In what ways does the New Zealand government help the people?

4. Name some of the queer animals and plants of New Zealand. Besides lumber, what is an important forest product, and for what is it used?

5. Name the chief cities of New Zealand, and locate them on the map. Which is the capital? The largest? Which has been settled by the Scotch? On which island is it, and what products come from the near-by region?

6. What were the New Zealand soldiers called, and why?

7. Who are the Maoris? What were some of their former tribal customs? Where do most of them live, and how do they compare with the aborigines of Australia?



XV. NEW CALEDONIA AND OTHER FRENCH ISLANDS

WE have left Auckland and are on our way to New Caledonia (cāl-ě-dō'nē-ā), a large island belonging to France, about seven hundred miles off the eastern coast of Australia. The weather has been growing warmer, and we are sailing over summer seas in a climate similar to that inside the Great Barrier Reef. We pass Norfolk Island, an unimportant possession of England; go by atolls with coconut palms growing upon them; and, as we approach New Caledonia, steam slowly to avoid the coral rocks and reefs that almost surround it. The reefs are a few miles out from the shore, and many of them do not show above the surface. The captain consults his chart every few minutes, and he almost stops the engine as we go through an opening in the reef leading to the beautiful harbor of Noumea (nōō-mā'ā), the capital of New Caledonia.

Noumea lies on the western side of the island, right on the sea, with high mountains rising behind it. Its little houses are of wood roofed with galvanized iron; many of them have wide porches and are well shaded by palms and other tropical trees.

We spend a while in Noumea, trying our French on the storekeepers, and changing our shillings and pence into francs and sous. We buy some of the curious weapons used by the natives, and enjoy the bananas, pineapples, oranges, and coconuts, which cost so little that we can get all we want to eat for a few sous.

We call upon the governor, and from him we learn many things about this island. He tells us that it is almost as large as our state of Massachusetts, and that it has a popu-

lation of about fifty thousand people. There are a force of four hundred French soldiers to keep order here, and many French officials, traders, and mine or plantation owners. There are also people from Java and from Indo-China, besides thousands of natives.

Some of the native tribes are of the Papuan (pä'pōō-än) race, of which we shall see more as we go on with our journey. The Papuans inhabit New Guinea and many of the smaller islands of the Pacific. They are far different from the Australians, and not at all like the Malays, from whom are descended our little brown cousins of the Philippine Islands. They have dark faces, frizzly hair, and in features are much like Negroes. They wear few clothes, some of them going almost naked.

The different Papuan tribes vary somewhat in appearance and customs. Here in New Caledonia they are hospitable and quiet among themselves, although they have frequent wars with their neighbors. Each tribe has its chief, who acts as ruler and leads in wars. The people live in villages of circular houses, each of which has a top like a cone. The houses are made of wood and thatched with grass and leaves. They have narrow doors and no chimneys, so that when we visit them the smoke makes our eyes smart. We ask one of the chiefs why he does not have chimneys; and he replies that the smoke does no harm and it keeps out the mosquitoes.

New Caledonia was formerly a convict settlement, thieves and other criminals once having been sent here from France for punishment. This practice was stopped in 1896, and to-day only a few hundred prisoners are kept here. Many former convicts have remained after being freed, and now have farms and plantations of their own.

New Caledonia has schools for whites and natives, and

there are telephone and telegraph lines to many parts of the island. A railway extends twenty miles inland, and during our stay we go for a motor trip of a hundred miles on a good road.

The island has excellent timber, including the kauri and other pine trees that we saw in New Zealand. In the mountains not far from the coast are mines that yield coal, iron, and copper, and also nickel, chrome, and cobalt. Chrome and cobalt are used in the manufacture of iron and steel and in dyes. This island ranks next to Canada as the world's chief source of nickel. Some of the ore is smelted here, and some is sent to Europe.

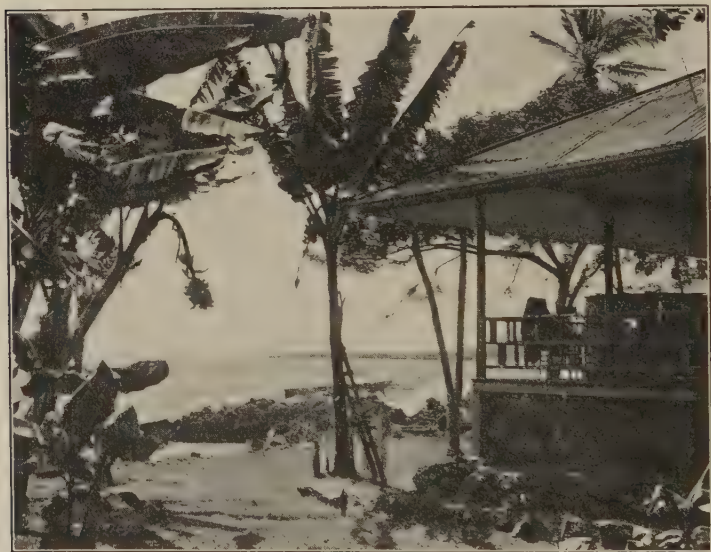
In the lowlands the French have established sugar, tobacco, cotton, and coffee plantations, and rice and corn are raised also. We see pineapples and bananas growing in abundance, and pass many herds of cattle and flocks of sheep. The planters have pretty little one-story houses of wood roofed with galvanized iron, like those in Noumea.

Near New Caledonia the French own also the Loyalty Islands, sixty miles away, and many other small islets. To the northeast is the New Hebrides (hěb'ri-děz) group, which is governed by both France and England, jointly.

About three thousand miles to the east of us, or about as far as the distance across the Atlantic, are other groups of islands governed by the French. These include the Paumotu (pä-ōō-mō'tōō) Archipelago, the Society Islands, and the Marquesas (mār-kā'sās). They are so far distant that we shall not go out of our way to visit them, especially as only one of them is of any importance. That one is the island of Tahiti (tä-hě'tē), in the Society group.

Tahiti is about half-way between the Panama Canal and New Zealand, and so is visited by large steamers going from Australasia to the United States or to Europe by way

of the Canal. It has about five thousand inhabitants, half of whom are white. The interior is nothing but high mountains, but around the coast there is a strip of lowland where all the people live, and where there are plantations raising vanilla, coconuts, and sugar. Tropical fruits are plentiful and furnish much of the food of the natives. The



A plantation owner's cottage in New Caledonia.

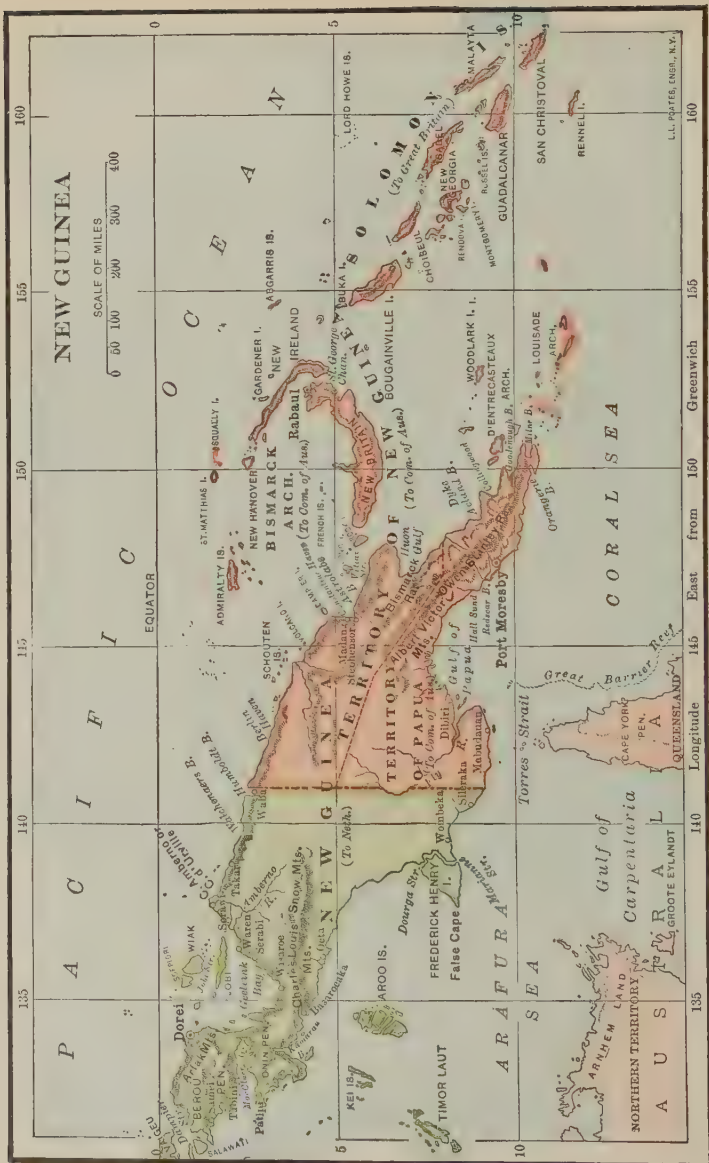
chief export of the island is copra, which is the dried meat of the coconut, and which is sent to Europe and the United States to be used in the manufacture of soaps, cooking oils, and other things. Copra is made by breaking the coconut meat into pieces and spreading it out in the sunshine until the moisture evaporates. It is then put into bags for export, and at the factories the oil is extracted from it.

The natives of Tahiti are of the race known as Polynesians (pōl-i-nē'shē-āns). They have black curly hair,



Coconuts are the chief crop of the South Sea Islands.

brown skins, broad noses, rather thick lips, and beautiful teeth. The men are tall and well formed, and the women are often quite handsome. None of them do much work, as they can get enough to eat by spearing fish along the



coral reefs and gathering the bananas and breadfruit that grow wild on the lower mountain slopes. They are peaceful and happy, and spend much of their time lying about in the warm, bright sunshine.

The capital of Tahiti is Papeete (pä'pā-ā-tā), which lies on a fine harbor. It has stores roofed with corrugated iron, churches built by the missionaries who first came here many years ago to convert the natives, crude native houses, and some pretty bungalows in which the white people live. There are moving picture theaters, and many little shops that sell souvenirs of the South Seas.

XVI. NEW GUINEA

CONSIDERING Australia a continent, New Guinea (gĭn'ī) is, next to Greenland, the largest island on the globe. It is longer than the distance from New York to Omaha, and its width in places is as great as that from Boston to Washington. It would make more than seven states the size of Kentucky, and about thirty-eight as big as Massachusetts.

Turn to your map and look at it. What is New Guinea like? A crocodile? Yes, a little; but more like a gigantic bird squatting on the Arafura (ä'rä-fōō'rä) Sea and Torres (tör'ēz) Strait, its island-feathered tail extending eastward into the Pacific, and its ragged head about to swallow some of the islands of the Malay Archipelago.

This vast country was discovered by Menezes, a Portuguese navigator, in 1526, only thirty-four years after Columbus discovered America, but for centuries it lay unexplored and unclaimed. In 1848 the Dutch, who had been surveying the coast, took formal possession of the western portion of it, and in 1884 the English and the Germans

claimed the remainder. The Dutch still have the western half of the island. Part of the eastern half was formerly owned by Great Britain and part by Germany as Kaiser Wilhelm's Land. Germany lost her share in the World War, and all of eastern New Guinea is now included in the British Empire. The southeastern part is known as the Territory of Papua (pä'pōō-ä), and in the northeast is part of the Territory of New Guinea, both being governed by the Commonwealth of Australia.

A large part of New Guinea has yet to be explored by white men. At present we know only that the interior is a wild land of high mountains, great rivers, and low, fever-laden plains. The Charles Louis Mountains in Dutch New Guinea have peaks so high that, although they lie close to the Equator, they are clad in perpetual snow. Ranges in Papua are almost as high, and there is one peak that rises more than thirteen thousand feet above the level of the sea. Each country has great rivers that have built up vast deltas and plains. The Fly River in Papua is a mighty stream navigable for more than six hundred miles.

Nearly all of New Guinea is covered with forests. The vegetation is so thick that it would take us months to make our way through it from one side of the island to the other. The trees are much the same as those we saw in Australia, but so dense that the leaves shut out the sun, and so bound together with creepers and rattans that we should be obliged to cut a path from one place to another through the tangled undergrowth. There are many poisonous snakes in the forests, and also savage tribes hostile to white men. The dangers are so many and travel is so difficult that we shall confine our journeys to the coast.

In coming from New Caledonia to New Guinea, we are in coral seas all the way. The Great Barrier Reef extends

almost to New Guinea, which also has a coral reef guarding its coast. We make our way through a break in the reef, and wind in and out through coral gardens to a beautiful harbor, almost surrounded by hills. On the shore is a collection of wooden buildings and native huts. They are Port Moresby, the chief town of New Guinea and the home of the English governor.

We pay a visit at Government House, built on a commanding site at the eastern end of the harbor, and we have chats with the different government officials. They tell us that the exploration of the island is going on rapidly, and that the Dutch and British governments are beginning to develop their territories and to civilize the natives. Gold has been found in the mountains, and copper is being mined near Port Moresby and exported. Petroleum exists in several regions, and drilling for oil is now going on. Large areas of land near the coast have been leased to planters and are now yielding coconuts, rubber, and sisal hemp. The British officials make every native property owner plant a certain number of coconut trees if his land is suitable. Rubber, copra, gold, copper, and pearls are the chief exports of the British territory.

One of the strangest products of this part of the world is *bêche de mer* (bâsh dẽ mâr'). This means a kind of slug, or sea worm, that is found in the coral reefs off the coasts of New Guinea and other islands. These worms are gathered at low tide, when the reefs show above the water, or are obtained by divers. They are from six inches to two feet long, and, when dried and smoked, look something like Frankfurter sausages. Most of them are shipped off to China, where they are considered a great delicacy. Shark's fins are another queer article of food sent from here to China.

We learn that the New Guinea natives are fond of tobacco, and that they use sticks of tobacco as money. The sticks are as long as a lead pencil and a little thicker. They are composed of the strongest tobacco leaves, coated with a sweet mixture that makes them stick together. In some villages four sticks is the pay for a day's work, and a certain number will buy a hatchet, a knife, a fish net, or a necklace. They are taken and given in trade at the stores of Port Moresby.

The natives of New Guinea are most interesting. They are Papuans and Melanesians (mĕl-ă-nĕ'shĭ-ăns), and differ greatly according to the tribes to which they belong and the parts of New Guinea they inhabit. Some of them are cannibals, and others used to cut off the heads of their captured enemies; but in general, they are affectionate among themselves, and easily ruled by the foreigners. They are more intelligent than the native Australians, although very superstitious. They believe in witches and ghosts, and most of the tribes worship a great spirit who, they think, lives in the mountains.

We see natives about Port Moresby wearing clothes much like ours, but they are the students of the mission school. There are other mission schools scattered over the island, and many of the people have become civilized. Some of them belong to the native constabulary, which helps to keep order in Papua. The people of the wilds wear almost no clothes whatsoever. The women and girls of some tribes have petticoats of long leaves, grass, or strips of bark strung together and bound about the waist in flounces, layer upon layer. They have also necklaces of shells or metal, and the skirt and necklace, with a coat of tattooing, often forms the whole costume.

The native men wear even less than the women. Many

a one has only a necklace and bracelet and a bit of cloth about his waist, with perhaps a bark belt or two, ten inches wide, bound around the body. The belt is usually tied very tight, compressing the waist like a corset, so that even though the man be full grown, his waist is exceedingly slim. We ask the reason for such a custom, and are told that the men want the women to think they have small stomachs and are therefore small eaters! The women provide most of the food, and a young woman who is looking about for a husband naturally chooses the man who eats least! A boy on being asked why he laced himself so tightly, said, "I do so because when I am older I must get me a wife, and if I have a big stomach, no one will have me." It is said that some of the tribes think it a disgrace for men to be fat, so the braves do all they can to keep thin.

In Papua the men tattoo their bodies and faces in hideous fashion. In some tribes the women are tattooed all over, ink being pricked into the skin with thorns. A thorn is dipped into the ink and then driven through the skin with a little mallet. Such dressmaking is slow, but a suit once made lasts a lifetime.

Each tribe has its own way of combing the hair, and the headdress often indicates the state of the man or woman who wears it. For instance, you may know whether a woman is married or single by a look at her head, for after marriage a girl shaves her head close to the scalp and keeps it so shaved for the rest of her life. The men in some regions dress their hair so that it stands out all over their



Tattooed woman of
Papua.

heads, and in others they thread their hair through many little bamboo tubes or pipes, so that it looks like great tassels.

Many natives pierce their ears, and some thrust sticks and other ornaments through their noses. Indeed, the odd customs are as many and as different as the tribes, and this is so not only in dress, but also in the manner of living.

In some villages the men dwell in clubhouses and the women in huts by themselves, several of them often be-



Native boat, New Guinea.

ing in one hut. The women cook the food in the huts and bring it to their husbands at the clubhouse. There they lay it on the porch, for women may not enter the clubhouse, nor do they eat with their husbands. These clubhouses are of great size. They have a sort of ridge roof thatched with straw or leaves, which makes them look like immense haystacks. There are no windows, and the smoke gets out as it can, through cracks in the walls or openings in the thatched roof.

In other regions the men and women live together in apartment houses. Such a house is made of a framework of poles, roofed with grass or the leaves of palms and bananas. It may be five hundred feet long and sixty feet



Some of the Papuan tribes live in thatched huts set on poles.

wide, and may contain as many as fifty families. It is divided by little partitions into stalls or pens, opening upon a central hall. Each family has its own stall; in it the cooking is done, and there all sleep at night.

We are delighted with the native children. The girls have odd-looking dolls, the boys play leapfrog and other

games, and they seem to have as much fun as we do at home.

One of the oddest things in New Guinea is the cradle, which is a bag made of the fiber of the banana plant. The baby is put in the bag and hung to a pole in the roof or in a tree outside the hut, and swung to sleep. When the mother goes away, she merely unties the string and throws the cradle, baby and all, upon her back and walks off with it.

Many of the native tribes spend much of their time hunting and fishing. Some make pottery for sale. Others have little farms where they raise sweet potatoes, yams, bananas, and other tropical fruits. The people live largely on vegetables, game, and fish, and also snakes and lizards and worms.

New Guinea has some of the same wild animals as Australia. It has anteaters, kangaroos, wallabies, wild pigs, and dingos. It has alligators and turtles, and sharks swarm along the coasts. It has ten species of snakes, many ants, and an insect whose bite produces sores like pimples. It has gorgeous butterflies and the most beautiful birds in the world.

The birds of New Guinea are wonderfully colored. We see some in the woods not far from Port Moresby, and pigeons of various kinds in the settlement. The goura (*gōō'rā*) pigeon is almost as big as a hen turkey and is more beautiful than a peacock. Its body is of a brilliant light blue, its neck shines like an opal, and it has a crest of blue feathers running high up from the back of its head, which, when the sun touches it, shines as though it were set with jewels.

And then there are the tiniest humming birds, more brilliant than our humming birds at home. There are red birds and parrots of the most gorgeous colors. There are

cassowaries as big as young ostriches. We see one that has been tamed in Port Moresby, but are told that it is not a safe pet, for it eats the buttons from the workbasket, and it may try to take a bite out of the kitten or peck at the baby.

The most beautiful of all birds, however, is the bird of paradise, of which many varieties are found in New Guinea. This bird is comparatively small, but its feathers are beautiful. The golden bird of paradise has six long feathery tips on its head, and a great crest which rises out of the middle of its back, forming a canopy over it. Others of these birds have bright red feathers with velvet-like plumes encircling the base of the head, and tail feathers that stand up like wires. The feathers are so fine that they are sent to Europe for hats and bonnets. As the birds must be killed to obtain their plumage, it is against our laws to bring any of the feathers into the United States.

Leaving Port Moresby by steamer, we make our way to the eastward, sailing in and out among the islands around the tail of New Guinea, and then coasting northward until we come to what was formerly German New Guinea.

Papua has three other ports besides Port Moresby, but the only one we shall visit is Madang (mä-däng'), on the north coast at the northern end of Astrolabe (äs'trō-lābe) Bay. There is a steamer in the harbor loading pearl shells, coffee, and cotton. The town is small and inhabited chiefly by officials and men engaged in trading or in managing the coffee, cotton, and rubber plantations and the coconut groves near the coast. Some are interested in gold mines in the Bismarck Mountains, the peaks of which we see far toward the south.

The natives here are much like those we saw at Port Moresby, save that they are, if anything, more wild and

less anxious to work. The planters have a hard time obtaining enough laborers to work their land.

Many tribes along the north coast, where it is so hot, go almost naked, although they may paint or tattoo their bodies or give them a coat of grease. Some wear bright feathers on their heads, and bracelets and necklaces of shell. Many of the houses are built on piles so high up that the people have to climb ladders to enter them. In other places there are houses in the trees for watchmen and also for refuge in time of attack.

XVII. AMONG THE SMALL BRITISH ISLANDS

AS we go on from island to island, we learn that almost every important group in the Pacific Ocean belongs either to the United States, Great Britain, France, the Netherlands, or Japan. During our stay in New Caledonia, we learned something of the islands France owns, and we have seen the vast possessions of the British in Australia and New Zealand and in eastern New Guinea. Now we are about to see some of the smaller British possessions.

The first group of islands we visit after leaving Madang is the Bismarck Archipelago, which formerly belonged to Germany. It consists of two large islands and many small ones lying off the northeastern coast of New Guinea. The largest, New Britain, is three hundred miles long. We stop at its port of Rabaul (rä'boul) and, making this our headquarters, coast about from one island to another. Rabaul has about three thousand people, and is the only important town in the archipelago. It was once the capital of the German possessions in this part of the world.

The Bismarck Archipelago, like New Guinea and other islands of this region, is largely volcanic. New Britain has

active volcanoes, and every now and then the people hear the rumble of an earthquake, so that one can never be sure he is safe. In 1878 a volcano suddenly burst out of the water in one of the bays, and ten years later Volcano Island was almost swallowed up by the sea, an earthquake producing a tidal wave that killed two German explorers who were then on the west coast of New Britain. The interior of the island has been explored but little, and the only settlements are on the coast, where there are a few plantations.

The natives of these islands are Papuans. They are the same kind of people we saw in New Guinea, and in some ways they are even more wild and uncivilized.

Leaving New Britain, we go on to the Solomon Islands, which lie southeast of the Bismarck Archipelago. These islands are British also, although before the World War Germany owned two of them. Bougainville (bōō'gǎn-vēl'), the largest island of this group, is bigger than Porto Rico, and it has two active volcanoes and one mountain more than two miles in height. The islands are beautifully wooded, having tree ferns forty feet high, palms of many kinds, banyan trees, and forests of sandalwood and ebony. Like the Bismarck Archipelago, the Solomons are wild and undeveloped, although they have fertile soil and good harbors for ships. Here, as in the Bismarck Archipelago, the chief product is copra.

The natives, as a rule, are not so tall as the people of New Guinea. They are Papuans of a deep brown color. Many of them go about naked, except for bracelets and girdles of beads or dog teeth; some have sticks in their noses and great plugs or rings in their ears. All have queer ways of combing their hair, the men sometimes wearing it in cones on the top of their heads. Sometimes they stain it red or light brown with lime or various kinds of earth.

Some tribes are hunters, and in the mountains there are men who are cannibals and others who go hunting for human heads. The people think that the man who commits the most murders in this quest is the bravest and noblest. A number of mission schools have now been established, and many of the natives have become Christians.

These people are good fishermen, and like the natives of other islands of this part of the world, they dive for pearls and shells and sell them to the owners of vessels that trade from island to island. They also catch the huge turtles found in rocks along the coast. The turtle shells often are sold to traders who export them to Europe, where they are made into combs and other things.

Some of the Solomon Islanders have farms and raise bananas, sweet potatoes, taro (tä'rō), and other vegetables. Taro is a food plant that we shall find throughout the South Sea islands. Its chief value lies in its root, which makes us think of our sweet potatoes or yams. It is eaten boiled, baked, or roasted, and is also made into bread and puddings. In the Hawaiian Islands it is ground into a mush called *poi* (pō'ê).

In addition to northeastern New Guinea, the Bismarck Archipelago, and the Solomon Islands, Germany formerly owned many more Pacific islands that are now governed by other nations. North of the Equator from where we are now, it had the Carolines, the Marshall Islands, and most of the Mariana, or Ladrone, Islands. It owned the island of Yap, where there is now a powerful wireless station, and Nauru (nô-rōō'), which has valuable deposits of phosphate. All of these possessions except Nauru have been taken over by Japan. Germany also held German Samoa, which we shall visit later.

Most of these small islands are little more than patches

of coral on the face of the sea. Some yield copra, and others pearl and tortoise shell, but as a whole they are of little value to commerce. Their natives are of a low grade of civilization, and so few in number that it will hardly pay us to go out of our way to visit them.

The greater number of the small South Sea islands belong to the British. Besides the British possessions we have already visited, John Bull owns the Gilbert and the Ellice (ĕl'is) islands, composed of atolls lying east of New Guinea, Fanning and other small islands south of Hawaii, the Cook Islands, which might be called the sisters of the Society Group, and the Tongas, which are known also as the Friendly Islands.

All of these possessions are ruled by the Governor of the Fiji Islands, who has the title of British High Commissioner of the Western Pacific. He is appointed by the King of England, and has his capital at Suva on the island of Viti Levu (vē'tē lā'vōō) or "Big Fiji," the largest of the Fijian group. Many of the islands are ruled through their chiefs, who are advised by the English officials. The Tongas have a king of their own and a legislative assembly, half of the members of which are elected by the people, although they are under British protection.

The Fijis are the most important of all these small English possessions. They are volcanic islands rising steeply out of the sea, each having a coral reef about its coast, so that it might be considered the head of a mountain with a necklace of coral. There are more than two hundred such islands, the group having an area as large as Massachusetts. Only eighty of them are inhabited, and many of these are so small that there is but one village upon each. Most of the people live on Viti Levu, which is about the size of Connecticut, and Vanua Levu (vā'nōō'ā lā'vōō), which is some-

what smaller. There are several thousand Europeans in the colony, and a large number of Chinese and East Indians, who have been brought in to work on the plantations.

Our trip from the Solomons to the Fijis takes several days; but the sea is smooth, and we are able to gather information about the islands while on the way. The Fijis were discovered by the Dutch in 1643, but were not thor-



oughly explored until Captain Charles Wilkes of the United States Navy sailed about them in 1840. At that time and for years thereafter the inhabitants were ferocious cannibals, who considered human flesh the greatest of delicacies. The different tribes made war on one another, and each sent out to the neighboring islands crews of warriors in canoes, to secure captives for their horrid feasts. Slaves were kept and fattened for food, and upon rare occasions a man might even sacrifice his relatives and friends.

This was the condition when the missionaries first came to the Fijis. They had great trouble at first, but they made many conversions. At last they converted the king, and with his aid the rest of the people, so that to-day the Fijians are almost all Christians and the most civilized of any of the South Sea islanders. They have more than a thousand churches of different denominations, and most of the natives attend them. There are about thirty-three thousand children in the Sunday schools. The Fijians have their own native preachers. A common sound, evening and morning, is the hymn sung at family worship. Mission schools have been established, and nearly all the natives can read and write. Many have farms of their own, and they are among the happiest of the Pacific peoples.

Now we are approaching the Fijis, sailing along Viti Levu. The hills rise up from the coast, and low-hanging clouds are resting on them. Notice that strip of light green dividing the deep blue waters outside from those close to the coast. That marks the coral reef, where the water is shallow. The town on the beach is Suva, the Fijian capital. You can see its buildings under the coconut trees that border the shore.

Now we are going into the harbor through a funnel-shaped entrance. Our steamer moves slowly, avoiding the native boats shooting hither and thither. What queer things they are! Look at this one at the right of the steamer. It has a three-cornered sail made of matting, and an outrigger, which is a coconut log floating in the water outside the boat and tied to it with bamboo to keep it from overturning.

See the men in the boat! They have frizzly hair and skins of a mahogany brown; but they are tall and fine looking. How their muscles swell as the men work their

way through the water! They are Fijians. Listen! They are calling out a welcome to us, but the commotion on board is so great we cannot understand them.

Now we are in the harbor coming up to the pier. There are boats large and small all around us, and we anchor side by side with English, Canadian, and American steamships that are here to trade with the Fijis. The islands are on the route of large steamers plying between Vancouver and Sydney, and there are smaller steamers leaving regularly for New Zealand, the Tongas, Samoa, and Melbourne. Vast quantities of sugar, copra, and bananas are shipped from here, and also pearl shells and *bêche de mer*.

Leaving the ship, we call on the governor and then stroll along the Victoria Parade, the chief street of Suva. We pass English men and women dressed in white, sea captains and sailors, traders from many lands, Chinese and Indians, and native Fijians. Some of the latter are in the uniform of the constabulary. We visit the government school where the natives are taught boat building, iron working, and other manual arts. Suva has a hospital, a government savings bank, and many stores, and we can send messages from here by telegraph, cable, or radio. There are telephone lines out into the country, and almost a thousand miles of good roads in Viti Levu and the other islands of the group.

Most of the natives in Suva speak English. We take several for guides and interpreters during our travels over the islands. We go about on horseback and in automobiles, for there are bridle paths or roads almost everywhere, and we can travel easily and safely through this once cannibal land.

We ride along the coast where the brown-skinned Fijian girls are fishing on the coral reefs and bringing their catch

to the shore. The fish are of all colors; some are almost as gorgeous as the birds we saw in New Guinea. There are green fish and pink fish, gold fish and silver fish, and fish the color of sapphires and rubies.

These seas are noted for their animal life. In the coral gardens are crabs of many kinds. There are star-fish and an indescribable variety of sea monsters. Some of the coral patches are almost real gardens in their profusion of shrubs, bushes, sprigs, and sponges of coral. Some coral is pink, some blue, and some lavender. We gather specimens and lay them away, but they lose their beauty when they are dry.

Our trips into the interior are even more delightful than those along the shore. We travel through woods where trees shade us from the tropical sun, and now and then stop to rest under a great umbrella fern. The ferns of the Fiji Islands are even finer than those of New Zealand. There are bird's-nest ferns clinging to the boughs of old trees, and climbing ferns that hang down from the branches



Tree ferns.

and trunks. The Fijis have beautiful pines and flowering trees, where we see red and green parrots peeping out through the blossoms.

There are also poisonous plants, such as the tree nettle, which has glossy leaves with red and white veins. When touched, they sting one so that the pain lasts for days.

And then there is the tree called the itch plant. Its sap is somewhat like milk, and if it touches your skin it causes terrible pain and will make your body break out into sores that last a long time.



Sisal hemp plants.

A large portion of the Fijis is laid out into plantations of sugar, coconuts, and fruit, which are the chief products of the islands. We see also plantations of sisal hemp, cotton, rubber, and tobacco.

Tea and coffee trees have been set out on the higher lands, and rice is grown on the lowlands. The most important crop of all is sugar, and the biggest plantations are owned by a sugar refining company of Sydney, Australia. This company has its own mills and railway lines and its boats that go from island to island. The Fijis have also tea factories, rice and oil mills, copra drying plants, and saw mills.

Everywhere we go we see little farms cultivated by the

natives. There are fields of bananas, sweet potatoes, taro, and yams, and of rice, sugar cane, and Indian corn. Many of the fields are in terraces, or steps one above the other, irrigated from the streams by pipes of bamboo.

We enjoy the pineapples that are brought from the fields for us, and also the bananas fresh from the stem. The natives invite us into their homes, and frequently ask us to stay over night. Their houses are not large, but they are beautifully made. They have walls of reeds coated with dried leaves and covered by a heavy roof, upheld by tree trunks set into the earth. The ordinary house has but one room, with an opening at the front covered by a mat that serves as



A field of pineapples.

the door. In the center is the fireplace, a hole cut out through the floor with a scaffolding over it, upon which food is hung to be cooked. Most of the cooking is done in earthenware pots. There are no chimneys, and the smoke colors everything black. Wooden bowls, coconuts, and gourds are the chief kitchen utensils. In some of the houses we find knives and hatchets made in the United States, and now and then we see a cheap clock ticking away, to the delight and pride of its owner.

There are no chairs in most of the huts. The people lie around upon mats spread on a layer of soft grass. These mats are also the beds, the best of them being spread upon a slightly raised portion at one end of the room, where, as guests of honor, we are invited to sleep.

For the first night we try the Fijian pillows. They are little logs of bamboo on legs just high enough to fit under the neck and raise the head off the floor, but so hard that they make our necks stiff. The next night we roll up our coats and use them instead.

It is very warm in the Fijis, and the natives of the interior wear little clothing. They are modest, however, and are careful how they treat one another. They are cleanly; indeed, they have wooden bowls of water at the doors of their houses, so that one may wash his feet before stepping upon the white mats. We always take off our shoes when we visit our native friends in their homes, although they politely protest.

We carry canned stuffs with us to share with our hosts and to vary the diet of yams, taro, breadfruit, and bananas, which are the chief food of the natives. At some villages as a great honor we are treated to a feast of roast pork. Pigs are found throughout the Fijis, and their flesh is considered a great delicacy. After a pig is killed and cleaned

it is roasted whole by stuffing it with red-hot stones, laying it in a little pit lined with more hot stones, and covering it with grass and earth. This forms a natural bake oven quite as good as one made of iron or bricks.

1. What islands does France own in the Southern Pacific? Which two are the most important, and why?

2. What two countries lead the world in the production of nickel? (See also Carpenter's Geographical Reader, "North America.")

3. What product is exported from nearly all the South Sea Islands? For what is it used?

4. Name the two largest islands of the globe, aside from Australia. Which one is in the South Pacific, and to what country does it belong?

5. Tell something about the location, shape, and surface characteristics of New Guinea.

6. What is *bêche de mer*? Where is it found? By whom is it used?

7. What minerals have been found in New Guinea? What products are exported from the island? What beautiful species of bird is found there?

8. What are the chief native races of New Guinea, and how do they live and dress?

9. What nation owns most of the land in the South Pacific? Name its most important possessions there, and find them on the map. Which groups contain the most land? (See tables.)

10. What islands are governed from the Fijis? Which group still has a king of its own?

11. What small islands are on the route of large steamers crossing the Pacific?

12. What are the chief products of the Fiji Islands?

XVIII. SAMOA

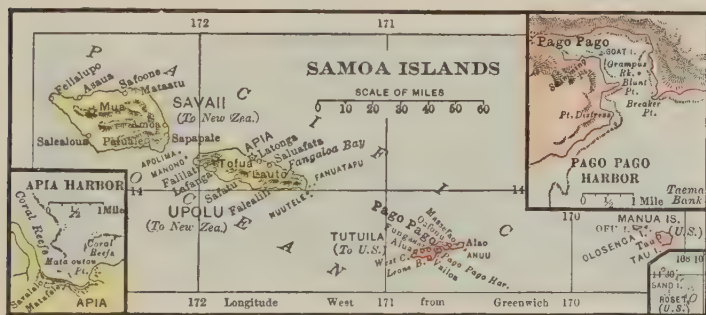
HIP, hip, hurrah! Our cheers ring out over the water! We wave our handkerchiefs and throw our hats high into the air! We are in the harbor of Pagopago (päng'ō-päng'ō) on the Samoan (sä-mō'ân) Island of Tutuila (tōō-tōō-ē'lä). Don't you see that United States battle-



The harbor of Pago Pago is the best in Samoa. The town consists of native huts and of frame buildings where Americans live.

ship at the wharf and the Stars and Stripes waving above the building behind it? Those shores covered with palm trees and the wooded hills rising almost to the clouds on every side are American soil; and the half-naked girls and boys who are rowing their boatloads of vegetables and fruit out to the steamer are our brown-skinned Samoan cousins, who pride themselves on belonging to "Uncle Sam."

Away off here south of the Equator in the middle of the Pacific Ocean, the United States has four little inhabited islands, besides several smaller islands. Their names are Tutuila, Tau (tä'ōō), Ofu (ō'fōō), and Olosenga (ō-lō-sēng'gä). They are very small islands, all together not



much larger in area than the District of Columbia. It is their location that makes them of value. They lie on the track of steamers going from San Francisco or Seattle to New Zealand and Australia, near the track from the Panama Canal to Australia and Malaysia, and not far from the shortest route around the world by way of the Panama and the Suez canals. For this reason we need them as a fueling and naval station. On long journeys steamers require frequent supplies of coal or fuel oil, and it is important for

us to have good harbors along the way where our merchant ships can be supplied in time of peace, and our naval vessels in time of war.

Pagopago has one of the best harbors of the middle Pacific. It is about two miles long and a third of a mile wide, and is shaped like a crookneck squash, with the entrance at the small end. The harbor is more like an inland lake than a bay. On each side of it rise steep hills, covered with dense vegetation, which shut out the winds and the sea. It is so deep that the biggest ocean steamers can float here without danger.

The canoes are now close to the steamer. The boys and girls in them are shouting their welcome to us. They are calling "Talofa! Talofa!" The words mean "Love to you," and love is the greeting we shall hear all over the island. The Samoans are the most affectionate of all island peoples. They are noted for their bravery and their good nature. They are almost always smiling and are friendly to strangers.

The boys are big, strong, and muscular, and the girls are plump and well formed. Their skins are the color of ripe chestnuts. They have beautiful eyes, and their hair is wavy rather than frizzly like that of the natives we saw in New Guinea. They wear more clothing. The girls have skirts of wide strips of calico, which are wound about the waist, falling almost to the feet. They have sashes or jackets about the upper parts of their bodies, although their arms frequently are bare. Nearly every one has flowers about her neck and in her hair, and even the boys wear garlands of flowers.

The Samoans are Polynesians. They are of a different race from the Papuans, having finer forms and a higher grade of civilization. Polynesians are found on many

islands in this part of the ocean, not only in Samoa but also in the Tongas, in the Society Islands, and in other groups of that neighborhood, and also in Hawaii, as we shall see later.

We throw ropes over the sides of the ship, and the brown-skinned girls and boys climb up to the deck with their baskets and bundles. We buy their pineapples, bananas, and oranges, and as they throw wreaths of flowers around our necks, we laugh with them and cry out "Talofa! Talofa!" in return.

After a while we leave the ship for the shore, and visit the commandant of the United States naval station, who is also the governor of American Samoa. The next day we go far back into the country to visit some of the villages.

The houses, at first sight, look like haystacks upon posts. They have enormous thatched roofs, upheld about the edges by the trunks of small trees, with a larger tree or so in the center. They are open at the sides or fitted with mats which can be let up and down, serving as walls. The



Samoa girl.

floor is the earth covered with little pebbles upon which mats are laid. Here the people sit or lie in the daytime, and here they sleep at night, using wooden pillows not unlike those of the Fijians. A fire is kept burning at night in a hole in the center of the floor for light and also to keep away mosquitoes.

Our cousins say "Tafa," or "Sleep well," as they bid us good-night, and we lie down upon the mats, the pebbles below reminding us of the princess in the fairy tale, who felt the pea under her many feather beds, save that the peas under us are as large as hazelnuts and hurt us, no matter how we turn.

At daybreak we go out for a bath before breakfast. The Samoans are very cleanly, for they are always splashing in the streams. We run down to the shore and frolic in the warm water with our little brown cousins, and then help them catch a few fish for breakfast. In the meantime others of the family have brought in some sweet potatoes, taro, bananas, and a number of chickens. The potatoes and meat are cooked on the hot stones of a native oven, and the meal is served with banana leaves as plates, a plan that is convenient for such a large party. There are no knives or forks, but we soon learn to eat with our fingers, although not so daintily as our friends who have eaten in this way all their lives.

During our stay in each village we are taken about by the *taupo* (tow'pō), or village belle, whose duty it is to entertain strangers and see that they have all that they want. This girl is usually the daughter of one of the chiefs, and is noted for her grace, beauty, and wit. She is the leader of the local games and sports, and has a prominent part in all village processions.

Before we depart, a council is held with some of the

chiefs, during which we are treated to kava (kā'vā), a drink used on social and ceremonial occasions. It is made from the root of a shrub of the pepper family that grows in these islands. There are special bowls for mixing the drink and odd ways of reducing the root to a powder. The custom in many places is to pound it on flat stones; but the old way, which the natives say is much better, was to cut it into little cubes and then have the girls chew it. After pounding or chewing, the kava is put into the bowl and covered with water. It is then kneaded with the hands under the water until the juice comes out, when the liquor is strained off.

When ready to drink, kava has a milky appearance. It tastes somewhat like soapsuds, and we can scarcely drink it at first, but later find it cooling and refreshing. It is not intoxicating unless taken in large quantities, when it affects the legs more than the head, so that the drinker may be perfectly sensible, although unable to move.

We are interested in the government of the Samoan villages. Every village is a little republic with its own chief, who rules under the direction of the American governor. The people are intelligent and well behaved. They have their own schools and churches, having been converted by the missionaries long before we took possession of the islands.

Many of the Samoans have small farms upon which they raise sweet potatoes, taro, yams, and other vegetables. Some have banana fields and coconut trees, and everywhere we find breadfruit, pineapples, oranges, limes, mangoes, and alligator pears. The most important product, and the only one that is exported, is copra.

The Samoans have but few manufactures. The women weave mats out of fine grasses, they beat the bark of the paper mulberry tree into a kind of cloth, and they make

ornamental straw and basket work. The men carve out clubs and models of canoes, and some of them collect pearl and tortoise shell. In short, the islands are of little commercial importance, and their great advantage to us, as we have already learned, lies in the harbor of Pagopago.

From Pagopago we go on to Apia (ä-pě'à), the capital of the western Samoas. These are the islands of Savaii (sä-vī'ē) and Upolu (ōō-pō'lōō), and several smaller ones. They once comprised German Samoa, but now are British, and are governed from New Zealand. The British islands are of the same nature as Tutuila; that is, they are volcanic and for the most part surrounded by coral reefs. They are larger than our islands, and they export copra and cacao, but ours are the more valuable because of the harbor. The Bay of Apia is unsafe in great storms. The natives are about the same as in American Samoa, with the same habits and customs.

As we come into the harbor of Apia, which is on Upolu, the tide is low, and we can see a great garden of coral rising out of the water. Here and there on the mountain sides are plantations of cacao (cä-cä'ō). Close to the water's edge are what from our steamer look like vast cornfields. The captain tells us they are coconut orchards, containing tens of thousands of trees loaded with millions of nuts.

Apia is a little town with less than five hundred white people. There are British, Germans, New Zealanders, Swedes, and a few Americans and French. The foreigners live in bungalows looking out upon the harbor. There are a hotel and a half dozen business houses that ship cacao and cocoa, and furnish the natives with cotton goods, canned foods, and supplies of various kinds.

After strolling through the town, we hire carriages and drive back into the country, up the mountain, to see the

place where Robert Louis Stevenson, a famous author, spent his last years befriending the people and writing his stories. We visit his beautiful home, "Vailima" (vā'ē-lē'mä), which is now the residence of the administrator of Western Samoa; here we wander about among the scenes Stevenson loved. Just above his favorite swimming pool there is now a power dam where electricity is generated to light the island of Upolu.

Stevenson's tomb is on the top of the mountain above his former home. It is built in the Samoan style. Upon one side of it is a bronze plate, bearing these verses written by him and called "Requiem."

"Under the wide and starry sky,
Dig the grave and let me lie.
Glad did I live and gladly die,
And I laid me down with a will.

"This be the verse you grave for me:
Here he lies where he longed to be;
Home is the sailor, home from sea,
And the hunter home from the hill."

XIX. THE HAWAIIAN ISLANDS — HONOLULU

WE are again under the shadow of the American flag, and about to land once more upon American soil. We left Samoa a week ago, and are now far north of the Equator in the harbor of Honolulu (hō'nō-lōō'loo) at the crossroads of the northern Pacific Ocean. We saw something of the value of such a location while we were in Tutuila. It is more apparent here in the rich and fertile Hawaiian (hā-wī'yǎn) Islands, which are not only a coaling station for ships, but also a center of commerce and trade.

You may have noticed that country towns spring up wherever several roads come together ; that cities are founded at the crossing of railroads and the junction of such roads with rivers, and at good harbors where the sea routes and land routes meet. It is the same at the crossroads of the sea, and islands become valuable when they lie at such places. This is especially so with the Hawaiian Islands.

For the past week we have been traveling on the direct road from Australia and New Zealand to the United States ; and, if we were to keep straight on, another week would find us in San Francisco. The ship on our right has just come from that port ; and the one going out, with a long stream of black smoke following it, is a Canadian vessel on its way from Sydney to Vancouver in British Columbia.

The Hawaiian Islands are visited regularly by steamers from our Pacific coast on their way to the Philippines, China, Japan, the East Indies, and Australasia. See that Japanese steamer over there, with the rising sun on its flag. It is from Yokohama (*yō-kō-hä'mă*) and it is bound for San Francisco with a cargo of rice, porcelain, and rugs. There are other steamers here from Hongkong and Shanghai laden with silk and tea on their way to America. The Hawaiian Islands are also on one of the direct routes from Asia to the Panama Canal, and there is a steady stream of ships flowing through here from Asia to Europe and the eastern coasts of our continent.

The Hawaiian Islands are one of the most valuable groups in the Pacific Ocean. They are not large islands. Their area all together is not so great as that of New Jersey, although they are scattered from east to west over the ocean for fifteen hundred miles. The inhabited islands are closer together, but from one end of them to the other is about as far as from Washington to Boston.

These inhabited islands are eight in number, and are situated at the eastern end of the group just about as far from San Francisco as Chicago is east of that city, and farther from any Australian or Asiatic port than New York is distant from London.

Hawaii (hä-wī'ē), the biggest of the inhabited islands, is not quite the size of Connecticut. Next is Maui (mä'ōō-ē), which is not one fifth as large. After that comes Oahu (ō-ä'hōō), on which the capital city, Honolulu, is situated, and still farther west is the island of Kauai (kä'ōō-ä'ē), which is known here as the "Garden Isle," because of its rich vegetation. Southeast of Oahu is Molokai (mō-lō-kä'ē), with its colony of people afflicted with the dread disease of leprosy. Lepers from all parts of the islands are sent there for treatment, and doctors from all over the world go there to study the disease. West of Kauai is Nihau (nē-hä'ōō), and not far from Maui are Lanai (lä'nä-ē) and Kahoolawe (kä-hō'ō-lä'wā), the last named being the smallest of the cultivated islands. It is so small that we could walk around its coast in less than a day.

The islands of the far west are mere dots on the sea, some of which probably have never been visited. Others are valuable only for their deposits of fertilizer. Upon some of them guano (gwä'nō) is found, thousands of sea birds roosting there every night. Laysan (lä'ē-sän) Island is a sanctuary for birds; millions of albatross, plover, tern, and other birds come here every year to nest and rear their young. Midway Island is important as a landing place for the American telegraphic cable, which connects San Francisco with the Hawaiian Islands, Guam (gwäm), and the Philippines.

All these islands are volcanic. They are made up of high mountains seamed with valleys and gorges, some of which

are more than a thousand feet deep. Between the mountains lie rolling plains, and at the feet of some, narrow plains slope out to sea. The best of the cultivated lands are in the plains and valleys and on the lower slopes. The mountains are often barren and ragged. Some of them are smoking volcanoes, and others dead craters long since burned out.

It was Gaetano (gä-ê-tä'nō), a Spanish navigator, who discovered the Hawaiian Islands. This was in 1542, but



Millions of birds come to Laysan Island to nest and breed.

they were not brought prominently before the world until Captain Cook visited them in 1778. He named the group the Sandwich Islands, after the Earl of Sandwich, one of his patrons. This name was afterward changed to the Hawaiian Islands.

When Captain Cook first came, the natives regarded him almost as a god, but a year later a misunderstanding arose. There was a quarrel between the whites and the natives, and



A business street in Honolulu.



A home in a suburb of Honolulu.

Captain Cook was killed on the island of Hawaii, where we may see his monument.

At the time of Captain Cook's discovery, the country was populated by many brown-skinned people much like those we saw in Tutuila, although they had perhaps a higher degree of civilization. They were then divided into several tribes, each having its own little territory. In the year 1800, Kamehameha (Kā-mā'hā-mā'hā), a chief of the island of Hawaii who had conquered the other chiefs, proclaimed himself king and founded the dynasty that ruled the group almost to the time when the islands were annexed by the United States in 1898.

In recent years the natives have been steadily decreasing in number, and there are not one tenth so many now as at the time Captain Cook landed. They were long ago converted to Christianity. They have always welcomed strangers to their shores, so that there are now five or six times as many foreigners, or the descendants of foreigners, as there are natives. All the people, however, are now American citizens, and we are among friends the moment we land.

What a beautiful city is Honolulu! It is called the Paradise of the Pacific, and it seems a paradise to us as we walk up the wide streets and stroll by gardens filled with beautiful flowers and hedged with tropical plants, under the shade of royal and coconut palms. Mark Twain called these palms "feather dusters struck by lightning." We seem to be in a great botanical garden, interspersed here and there with fine houses, lawns as velvety as those of Washington, D. C., and beautiful walks and drives.

Honolulu has business buildings as fine as those in a city four times as large in the United States. It has daily newspapers, paved streets, street-cars and thousands of

automobiles, churches and schools, theaters and moving picture houses. The city is lighted by electricity, and its stores, with their plate-glass windows and American signs, remind us of home.

The building that was formerly the palace of the native rulers is now occupied by officials of the territorial government. We learn here that the islands have a governor and



School children in Honolulu. Each one is of a different race.

secretary appointed by the President of the United States, and a Senate and House of Representatives whose members are elected by the people. The Hawaiians elect also a delegate to our Congress at Washington.

We visit the schools, which are quite as good as ours at home, and learn that there is also a university. The English language is used, and we listen to the children reciting at their classes. The pupils are not only Americans and Hawaiians, but of many other races, and it is the same all over the city. The people we meet have come here from many

parts of the world. There are whites from all the states of our Union and from almost every country of Europe. There are yellow-skinned people from China, Japan, and Korea, and brown-skinned ones from the Philippines and other Pacific Islands. Almost half the people on the islands are Japanese, who originally were brought here to work on the sugar plantations. When we go to the post office to mail letters home, we find signs over the windows in five languages: English, Hawaiian, Chinese, Japanese, and Portuguese.

We spend some time in the Chinese quarter, buying tea, candied ginger, and other things sold by the almond-eyed merchants. We visit the places where most of the Japanese live, smiling at the yellow-skinned babies, some of whom are carried about on the backs of their brothers and sisters, just as they are in Japan. Everywhere we go we see men, women, and children as dark as the Samoans. Some of them are native Hawaiians, and others are the descendants of natives who have married white men or women. Many of the native Hawaiians are rich, and many belong to the learned professions and do business in the same way as the whites.

One of our many drives from Honolulu to places of interest outside the city is to the top of the Punch Bowl, a little volcano five hundred feet high, at the foot of which lies the city. We stand on the rim of the crater and see the Pacific Ocean rolling up whitecaps far out from the shore. Right under us is Honolulu, its white houses showing out of the green; and beyond it, reached by a drive shaded with algeroba (äl-gě-rōb'ä) trees and coconut palms, is Waikiki (wī-kī-kī') beach. The ocean looks so tempting that we tell our driver to take us there from the Punch Bowl.

The Hawaiians are fond of the sea. Not only do they

swim in it and ride on it in boats but also they take what might be called sled rides on the breakers as they dash in to the shore. We join in this delightful sport at Waikiki and find it thrilling! Our sleds are surf boards. These are about eight feet long, and two feet wide, and are pointed at the front. Each of us pushes one of these boards before him as we swim out beyond the breakers to the coral reef not far from the shore. We take our stand on the reef, carefully watching the billows as they roll in from the ocean,



The beach at Waikiki, where there is fine bathing all the year.

and at just the right time we throw ourselves flat on the boards as a big wave reaches us. The mighty wave moves like the wind. We rise and fall, rise again on the rising wave — and in a few moments we are high on the beach, thrown out upon the soft, white sand.

Another place we visit is Pearl Harbor. Here, seven miles from Honolulu, are dry docks and a harbor big enough for all our battleships. It forms a great naval base for the United States Navy. As the Hawaiian Islands would be an important place in case an enemy fleet were to attack

us from the Pacific, our army and navy have spent a great deal of money here on defensive works. Besides Pearl Harbor, our navy has an aviation field and a powerful radio station, and at Schofield Barracks the army has quarters for thousands of soldiers.

XX. A LAND OF SUGAR AND PINEAPPLES

ANOTHER automobile trip we make from Honolulu is to the Pali (pä'lê), where we shall see one of the most wonderful views in all Hawaii. Leaving the city, our cars spin along steadily for sixty-seven miles up a winding road. Our way lies through the Nuuanu (nōō-ōō-ä'nōō) Valley, which is dotted with the homes of wealthy plantation owners. The grounds about some of the houses are fairylands of tropical beauty. We pass the Oahu Country Club, where people in white clothes are playing golf, and we drive by the mausoleum where are buried some of the royal Hawaiians who ruled this land before the United States took over the islands.

At last our cars stop. We walk a short distance and suddenly come out upon the edge of a precipice that almost takes our breath away. We are facing the north side of the island, and a strong wind is blowing. Far below us is a rich valley planted with sugar cane and pineapples. See that big sugar mill sending its black smoke into the sky, and look at the wireless towers of that radio station over there. Beyond, in the distance, the waves of the mighty Pacific are breaking upon the shore.

Let us leave the Pali and drive down into the valley to visit the sugar plantations. The Hawaiian Islands have some of the best sugar lands on earth. Except in Java,

the land here produces more sugar to the acre than any other place in the world. The cane is grown on Oahu, Hawaii, Maui, and Kanai, which yield so much sugar that they could give the United States and Europe an annual taffy pull and still keep enough for themselves. Every year the islands export sugar worth many millions of dollars, and the sugar industry furnishes employment to one fifth of the entire population. Besides the plantations themselves, there are factories that make sugar refining machinery, plants where the juice is extracted from the cane, banks and stores for the plantation employees, and the railways, wharves, and steamers needed to handle the cane and the sugar.

The sugar lands are along the coasts of the islands and on the lower slopes of the mountains. They are usually owned by companies with large capital, and are divided into great estates employing thousands of native or Asiatic workmen under white overseers and managers. One estate we visit has tennis courts and a baseball field for workers, an entertainment hall, a hospital, and a kindergarten. Most of the hard labor is done by Japanese and Chinese men and women, who live in little villages on the estates.

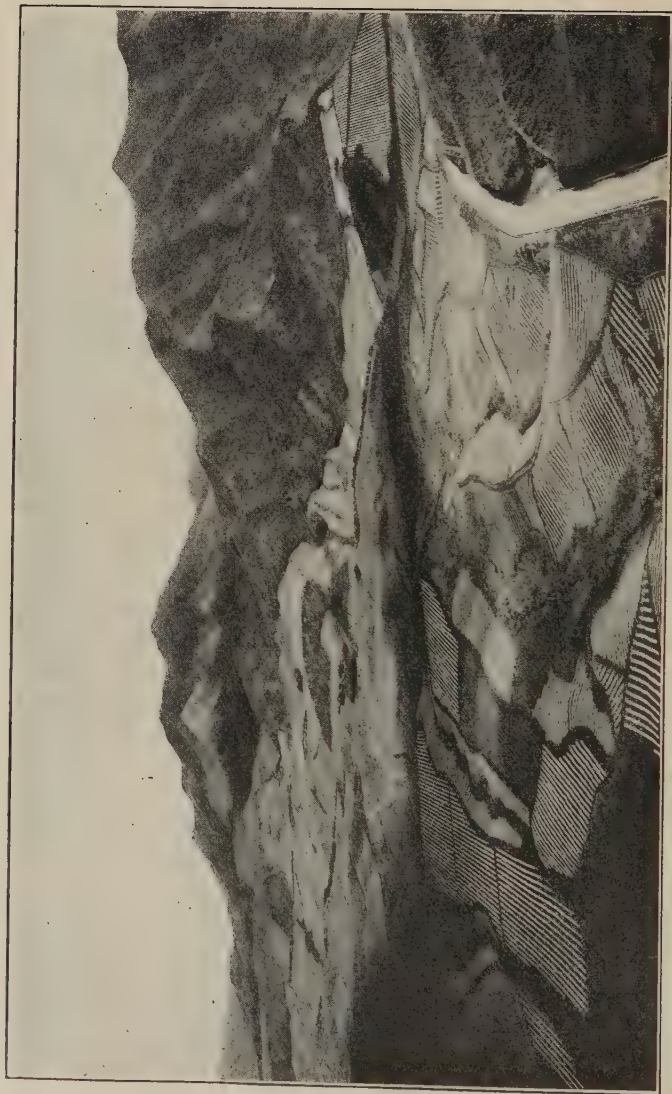
Each estate has its laboratory where scientists study the soil to see what fertilizers it needs to produce the most sugar. They know how much juice there is in each pound of cane and how much sugar it will yield. The larger plantations have railroads on them to carry the cane to the mills; and where the land is not too hilly, the plowing is done with steam plows. Some plantations have to be irrigated, and the water is often brought down from the mountains in great flumes built high up on trestles. Sometimes the cane is floated down to the mills in such flumes.

Leaving the sugar plantations, we drive up the lower slopes that border the valley, and visit a pineapple plantation. From the Pali the fields of pineapples looked like striped patchwork quilts, and we now see the reason for this. The white stripes are long strips of heavy paper. In these holes are punched and the young plants set in them. The paper keeps down the weeds and preserves the moisture in the ground until the plants are well started. The pineapple grows on the ground much like a cabbage, save that sharp, swordlike, prickly leaves stand out on all sides of each pine, and a bunch of sharp thorns sprouts out of the head of the fruit.

This central plateau of Oahu is the chief pineapple region in the Hawaiian Islands, and the biggest cannery in the territory is in Honolulu. We visit it when we go back to the city.

What a delicious odor there is all about the canning factory! Long trains of cars are bringing in the fruit from the country, and in a very short time it is sliced or grated and canned, ready for our salads or desserts. Every bit of the canning is done by machines. These peel off the skins, take out the cores, slice the fruit, and seal the cans. Almost the entire crop is shipped to the United States, and it now brings in about half as much money each year as the sugar crop.

Boarding a little steamer at Honolulu, we leave the island of Oahu, and spend day after day cruising about among the other islands, stopping here and there to go ashore. The climate is perfect, and the trade winds temper the heat of the sun. As we sail along, each hour brings a new picture on both sea and land. Now we are on the side of an island away from the winds. The country is barren in places and arid bluffs rise from the sea. Now we have gone around to



Pineapple fields seen from the Pali. The white stripes are strips of paper used to protect the young plants from the sun.



Hawaii is noted for beautiful waterfalls.

the opposite shore and all is one dense mass of green, made so by the heavy rainfalls. In some places the land is low, and on it we see the pale green of the vast sugar plantations; in others the ground rises in precipices hundreds of feet high, over which pour silvery waterfalls. Farther back are the mountains, with the clouds chasing one another over them, or playing hide-and-seek on their sides.

We go miles through woods of ferns and palms bound together with vines that climb even to the tops of the trees. We attempt to gather specimens of the different ferns and orchids, but there are so many we give up in despair. We rest on logs cushioned with moss so thick that we sink into it as on a green velvet sofa; and as we sit there our Hawaiian guides bring us oranges, bananas, and other fruits plucked

from the trees not far away. There is spring water almost everywhere, but we prefer the juice of the coconut fresh from the tree, and we drink it through a hole in the shell.

On the lands five hundred or more feet above sea level we find coffee growing, the best quality being produced on the island of Hawaii. The plants are small trees, many of them with trunks no bigger around than our thumbs and as straight as a cane. They have shining green leaves and small white blossoms, which load the air with perfume.

We learn that coffee is grown here and that some is exported, and that the islands sell also honey, bananas, hides, sisal hemp, tobacco, cotton, and rice. The rice is grown in the valleys or low down on the sides of the hills, where the patches can be flooded with water again and again. We see many Chinese at work, bending over the flooded fields.

Everywhere as we go through the islands, we are hospitably received by the native Hawaiians. Some of them live in grass huts, and others are rich and well educated and have homes much like ours. Occasionally we stay over night in a hut, having our dinner cooked after the native Hawaiian style, which we resolve to adopt for picnics at home.

The cooking is done in an oven made by digging a hole in the ground and walling it with stones. Stones are placed in the bottom, and a stone arch is built over the top. A fire is then made inside, and when the stones are red hot the oven is ready for use. The arch is now knocked down and the food, having been wrapped in the leaves of banana and other plants, is laid on the red-hot stones. Green grass is spread over the bundles, and above that a layer of earth, a little hole being left in the top.

Water is then poured in and the hole covered up. As soon

as the water reaches the hot stones it forms steam, and this cooks the food. Vegetables, fish, meat, and whole pigs are cooked in this way. Hot stones are put inside the pigs and under their shoulder blades to insure their being done through. The banana leaves keep in the juices, and the food is fit for a king.

At several of the native meals we have poi, and learn to like it. This is one of the chief foods of the natives, and in times past it held the same place among them that bread does with us. As we learned in the Solomon Islands, poi is a sort of paste or mush made of the root of the taro, a plant somewhat like the sweet potato or yam. The root is

first ground to a paste and then allowed to stand until it is slightly fermented. It is usually served from a bowl into which each guest dips his hand and thus carries the poi to his mouth. This takes considerable skill, and it is quite a while before we are able to do it in the most polite way.



Native eating poi.

XXI. A VISIT TO A VOLCANO

WE end our cruise through the Hawaiian Islands at the town of Hilo (hē'lō) on the island of Hawaii. How rainy it is here! The water comes down in torrents every few hours, and we go about our sightseeing between the

showers. Hilo lies on the eastern side of the island just under Mauna Kea (mou'nä kã'ä) and Mauna Loa (lõ'ä), two mighty mountains against which blow winds from the ocean, laden with moisture. As a result, it is about the rainiest town under the American flag, and is surrounded by vegetation that is the greenest of green. A little river runs through the town, pure mountain water flows along both sides of its streets, and in the country outside there are creeks at every few miles. There are large sugar plantations close to the town and scattered through it are coconut trees and fern trees, as well as bamboos and bananas.

Next to Honolulu, Hilo is the chief city of the Hawaiian Islands. Its harbor will accommodate the largest ocean steamers, and it has considerable commerce, much sugar being shipped from here. Its wide streets are lighted with electricity, and it has numerous telephones, good churches and schools, and large stores and hotels.

From the city we can see the top of Mauna Kea. It is 13,800 feet above us, and is the highest of all mountains in this part of the Pacific Ocean, although its sister, Mauna Loa, is almost as high. Mauna Kea is a volcano, but it died ages and ages ago. Mauna Loa is alive. It is a great fire mountain down whose sides at times flow rivers of boiling lava, destroying everything in their path. Some of these rivers have come from the crater at the very top of the mountain, and others from the crater of Kilauea (kē'lou-ä'ä), which is farther down on its slopes, four thousand feet above the sea.

Kilauea is only thirty miles from Hilo, and can be reached by motor-car, so early the next morning we start on the trip. We dash out of Hilo with our hats, necks, and even our motors decorated with flowers by our friends, on saying good-by. The first part of our journey is through sugar

plantations, the fields of pale green reaching away for miles on each side. We then go through a jungle and on by coffee fields, where we see the ripe red berries through the trees on the sides of the road.

How many different ferns! There are hedges of ferns, banks of ferns, ferns springing out from the trunks of trees, and tree ferns thirty or forty feet high. Everywhere there are gorgeous flowers; we see pink roses, bright fuchsias, yellow ginger flowers, and purple blossoms that remind us of morning glories. Now and then there is a break in the dense vegetation, and we have a fine view of the shore far below us, with the blue Pacific Ocean rolling up on the beach.

The slope is quite gradual, but the air grows cooler as we rise, and when we reach the Volcano House, the hotel on the edge of the crater, we find the air almost as bracing as in our mountains at home. It is too late to explore the volcano, for there are cracks in the earth and we dare not walk about at night without a guide. We know we are near it, however, by the strong smell of burning sulphur, by the steam jets here and there bursting through the mountain, and by the fiery clouds hanging over the crater. We can see their glow plainly from the front porch of the hotel.

We get up at daybreak to watch the sunrise, and then walk to the mighty black pit we have come so far to see. The steam oozes out of cracks all about us, the earth feels hot even through the soles of our shoes, and here and there we can look down into a crack through which the white-hot lava is flowing.

At last we reach the rim of the crater. We are on the edge of a pit almost eight miles in circumference and more than six hundred feet deep. It is about three miles from

where we are standing to the opposite side, and almost two miles across it in the other direction. This vast pit has walls and a floor of hardened lava, and in the center of it, far down below us, is a fiery lake of melted lava a mile in circumference. The natives call this lake "The House of Everlasting Burning."



The fiery lake of Kilauea, photographed at night.

See the sulphur in the earth all about us! Smell the sulphurous smoke that the wind is blowing toward us from the burning lake! It almost takes away our breath, and we put our handkerchiefs to our noses to keep out the fumes.

Picking our way around the rim of the crater, we reach a place where the slope is more gentle, and crawl down the sides to the floor of black lava. We tremble a little as we

slowly walk over it, for there are cracks here and there through which we can see the fiery mass flowing, and into which we thrust our walking staffs and bring them out burning.

How rough the floor is! It is covered with lava rocks and chunks of lava of all shapes and sizes. It looks like a mass of black ice that has been broken and then tossed about upon a stormy sea and frozen again.

We fan ourselves with our hats as our guide takes us carefully across the burning cracks to the flaming lake where the fiery mass is bubbling and boiling, now and then spitting up molten lava, reminding us of the geysers we saw in New Zealand. The face of the lake often changes. Sometimes a crust of black lava forms, only to be broken by some fresh force below, and thrown high up into the crater. Sometimes pieces weighing as much as fourteen tons are hurled into the air.

Don't go too near the edge! The lava often crumbles, and if we are not careful we might be dropped down into that seething mass. And watch out for the lava being thrown into the air! See, there is some going up now! It flies forth like liquid gold and falls outside the burning lake on the crust not far from our feet. We jump back, with our hearts in our throats, and watch the molten mass as it lies there so near us. Now it is changing! Its fiery gold is turning to copper color. It grows darker and darker as it cools, and at last it is as black as the crust on which it lies. The guide tells us it is dangerous where we are standing, and leads us farther away.

A little later he takes his staff and slips down close to the lake and dips it into the lava, some of which sticks to it. Then he brings the staff up, and, before it is cold, knocks off the lava and then presses a cent into it. He does this again

and again until he has a piece of lava holding a penny for each of our party. The lava cools while we wait. We can each take a penny home to show to our friends.

From the fiery lake, we make our way to the observatory that our government at Washington has built on the edge of the crater in order to study the volcano. We then go back to the hotel to rest and get ready for to-morrow, when we shall begin our trip farther up to the top of Mauna Loa.

We leave Volcano House early in the morning, and ride on horseback all day long, stopping now and then to rest. The way grows wilder and more barren, and we are glad when at last twilight comes and we stop at a rest house for the night. We sleep soundly after our hard day in the saddle, but are up again bright and early.

From the rest house we follow the trail up the mountain on foot, and at last we reach the topmost crater, more than thirteen thousand feet above the level of the sea. This crater is known as Mokuaweoweo (mō'kōō-ä-wā'ō-wā'ō), and is even larger than that of Kilauea. It becomes active about every ten years. Only a few years ago it had a mighty eruption that lasted a month. At that time the top of the mountain split open and sent a stream of molten lava all the way down to the sea, forty miles away. The pillar of fire above the crater could be seen at Honolulu.

As we visit it, Mokuaweoweo is quiet. Instead of being in danger of being burned by flaming lava, we make snowballs with the snow we find here at the summit, and pelt each other with them. We eat the lunch we have brought with us, then we start back down to the rest house. Here we spend another night, riding back to Volcano House the next day.

There is another volcanic crater in these islands that is even larger than the ones we have seen. That is Haleakala

(hä-lā-ä-kä'lä) on the island of Maui. It is so large that if the city of Chicago could be placed within it, there would still be room to spare. It is now extinct and is rarely visited. All three of these volcanoes are now a part of the Hawaiian National Park, created in 1921 by the United States Government.

XXII. GUAM

WE are again at sea, steaming westward through the sunny Pacific below the Tropic of Cancer. Our course is a little to the south, for we are bound for the Philippines, and have planned to stop at Guam, on the way.

Our ship is a government transport carrying soldiers and army supplies to our possessions in the Pacific, and it is only by special permits from Washington that we are allowed to travel upon it. What a magnificent vessel it is! It is finer than any we have yet seen during our tour of the Pacific Ocean. It is so broad that it would fill a roadway fifty feet wide from fence to fence, and so deep that if the keel stood on the ground, we should be almost even with the tops of the trees as we walk the hurricane deck or climb about in the rigging.

The vessel is divided into rooms, compartments, and quarters. There are about two thousand men on board,



including sailors, soldiers, and officers, and it takes a vast quantity of food to supply them. The kitchen is enormous; there is a bakery where a score of men are busy, day after day, making bread for us all; and there are cold storage rooms where the meat, vegetables, and fruits put on board at Honolulu or San Francisco are kept fresh throughout the voyage. The ship is heated by steam and lighted by electricity. It has exercise decks and reading rooms, where are also a piano, a phonograph, and other musical instruments.

The soldiers are of all classes, and our life on the ocean is not unlike that of a camp. The American flag floats above us. We are awakened every morning by the sound of the bugle, and the bugle calls us to breakfast, dinner, and supper. It gives the signal for guard-mounting, inspection, and exercise, and early in the evening it warns us to put out our lights and get into bed.

During the day there are games on deck. The men are glad to play quoits and shuffle board with us when they are off duty, and some of them even teach us to drill, allowing us to form a little squad of our own. The days go too fast, and when, after more than a week, we see a low island of blue rising from the sea, and are told it is Guam, we can hardly believe it.

Nevertheless, it is true. We might sail across the Atlantic from New York to Liverpool and not go so far as we have now come from Honolulu on our way to the Philippines, and we have still almost one third of the journey to make. Guam is more than thirty-three hundred miles from the Hawaiian Islands, three thousand miles from Samoa, more than fifteen hundred miles from Manila, and about thirteen hundred miles southeast of Yokohama, Japan. It is one of the Marianas (mär-ï-än'äs), of which

we have already heard. The archipelago was discovered by Magellan in 1521, and belonged to Spain until our war with that country in 1898, when Guam was ceded to the United States. At about the same time the rest of the Marianas were sold by Spain to Germany, which afterwards lost the islands to Japan during the World War.

Guam is the largest and most important of these islands, but it is only thirty-two miles long and from four to ten



United States battleships often call at Guam.

miles wide. It is valuable to us only on account of its position. The whole island has been made into a station of the United States Navy, the commandant of which is also the governor. Sailors and marines are stationed here all the time, United States battleships often call, and no foreign vessel may enter the harbor without the permission of our government.

Now we are nearer and can see that the island is volcanic

and covered with green. It is made up of low mountains or hills, with stretches of sand and lowlands along the coast, and especially at the north and south ends. Most of it is guarded by coral reefs, and our transport has to move slowly in entering the harbor of San Luis d'Apra (lōō'ēs-dä'prä), where we shall land.

The governor comes out to the transport, and in his launch we go on shore. He has automobiles waiting for us, and we leave at once for the town of Agaña (ä-gän'yä), the largest on the island, situated about seven miles up the coast. There is a good road that skirts the beach all the way, and the ride is delightful. We pass under beautiful palms, the coconuts on which make our mouths water as we think of the sweet juice within. We pass rice fields where men are plowing with the ungainly water buffaloes that serve as the farm and draft animals of Guam.

Here and there we see little native huts thatched with palm leaves, and now and then we pass brown-skinned men, women, and children clad in white or colored cottons, riding or walking along the road. Some of the women are washing clothes in the little streams. The older women have loose gowns with very full sleeves, but the younger ones copy the fashions of the Americans. Some of the native homes have American sewing machines and American furniture, although most of the natives still sleep on mats instead of beds. The natives are known as Chamorros (tchä-mōr'rō). They are much like the Filipinos, and are the descendants of people who originally came here from the Philippine Islands.

As we must leave with the transport, our travels are confined to a day in Agaña and a trip into the country. Agaña has between seven and eight thousand people. It has a government house, the marine barracks, a hospital, and a

church or so. In the center of the town is an open plaza bordered by coconut palms. Here the band plays, and tennis matches and baseball games are held. There are a few wooden buildings, some white adobe houses roofed with red tiles, built by the Spaniards, and many huts made of bamboo poles covered with palm leaves. There are a few stores, a moving picture theater, and even an American soda fountain where we order cold drinks. The town has telephones and electric lights, but no sidewalks. As we walk along the streets we meet Japanese, Chinese, Filipinos, natives, and United States sailors and naval officers. Now and then we pass an automobile or a native buffalo cart with solid wooden wheels.

Agaña has three public schools, which the boys attend in the morning and the girls in the afternoon, and there are other schools out in the country. Nearly every one has its baseball team, and the pupils are proud to be American citizens. The girls are taught lace making and cooking, and the boys learn carpentry.

In our travels outside Agaña we ride among the mountains. We see many birds, including starlings, crows, snipes, owls, and wild ducks. There are fruit-eating doves with rosy crowns, green backs, and yellow and purple breasts; and there is also the reed warbler, which sings melodiously.

On the fertile plains we visit the farms. They are small, for the territory is well divided among the people. The chief products are rice, sweet potatoes, coffee, cacao, sugar, and corn. There are also groves of bananas and coconut trees, and copra and coconut oil are exported. Half of the copra goes to Japan and half to San Francisco. However, the industries are few, and the island is of little commercial importance.

The climate is hot and at this time too wet for comfortable travel. Rain falls every few hours, making the roads muddy, and we are glad when we are again on the transport bound for the Philippines.

1. What islands in the Pacific are owned by the United States? Which of these is the most important? Why? What is the chief importance of Samoa and Guam? Which is the larger?

2. To what country does Western Samoa belong? What famous author is buried there? Name one or more of his books.

3. Name the most important of the Hawaiian Islands. Which is the largest? What is the capital and on which island is it? What is the second city, and where is it?

4. Tell something of the discovery and history of the Hawaiian Islands. What peoples live there now? How are they governed?

5. What are the chief products of the Hawaiian Islands? Which two are the most important? How does the production of sugar per acre compare with that of other lands? The total production? (See tables.)

6. On what island are the largest Hawaiian volcanoes? Which craters are alive? Which are extinct?

7. Describe Guam. What is the chief importance of that island?

XXIII. THE PHILIPPINE ISLANDS

WE talk much of the Philippines as we steam on toward Manila. Several of the officers on the transport have been stationed on the islands, and we sit with them out under the awnings on deck and look over the maps, studying these possessions of Uncle Sam's in the western Pacific.

The Philippine Islands were discovered only about twenty-nine years after Columbus came to America. All Europe was then excited by the stories of the New World, and many adventurous men started westward to look for

new waterways and new lands. Among others was Ferdinand Magellan, a Portuguese navigator, who commanded a squadron equipped by Charles V of Spain. Magellan had already visited the Malay Archipelago by going eastward from Europe, and he hoped to find a westward route to it and Asia. No one then knew how wide the Pacific Ocean was, and we may suppose that Magellan thought that Asia lay only a short distance on the other side of the lands discovered by Columbus.

At any rate, in 1519 he sailed from Spain to the eastern coast of South America and made various explorations, traveling southward along that coast until he came to the strait at its southern end, through which he crossed into the Pacific Ocean. Magellan was the first white man to find the strait, and it was named after him. He had bad weather on the Atlantic side of lower South America, but it was so pleasant after he had passed through the strait that he named the sea the Pacific, or quiet ocean. The Pacific had been discovered by Balboa before this, but Magellan gave it its name.

Sailing to the northward and westward, Magellan went on and on until he discovered what are now the Mariana Islands. A little later, on March 16, 1521, he sighted the Philippines and landed on the island of Cebu (sā-bōō'), in about the center of the archipelago. Here he met the King of Cebu, who acknowledged allegiance to Spain and was baptized as a Christian, with hundreds of his followers. A short time after this, while trying to subdue the people of Mactan, a little island lying off Cebu, Magellan was killed by an arrow shot by a native.

The King of Cebu thereupon rebelled, and Magellan's squadron was forced to leave. It sailed southward and westward, touching at Borneo (bôr'nê-ō), and then went

on to the Moluccas, (mō-lŭk'ās) where it got a cargo of spices. One ship then sailed for Europe by way of the Cape of Good Hope, and finally reached Spain, having made the first voyage around the world.

Magellan named these islands the St. Lazarus Islands, because they were discovered on St. Lazarus Day, but the name was afterwards changed to the Philippine Islands, in honor of Philip II of Spain, the son of Charles V.

Thus the Spaniards got their title to the Philippines by right of discovery. They conquered most of the natives and converted them to Christianity. They held the islands until the close of the Spanish-American War in 1898, when they were ceded to us upon the payment of twenty million dollars to Spain.

Our route from Guam is somewhat the same as Magellan's. As we near the islands we learn that, in respect to our homes, they are on almost the opposite side of the globe. There are two clocks on the transport, one of which keeps Washington time and the other ship time, the latter being changed every day to correspond with our longitude. By comparing the two as the days go on, we find the ship time is now actually more than thirteen hours ahead of that of our national capital, so that when it is noon in Washington it is after one o'clock the next morning in Manila. We go again and again to look at the clocks, and imagine what our friends are doing at home.

It puzzles us to know why the time is so different, and how the days are kept the same all over the world. We know that as we go westward the sun rises one hour later for every fifteen degrees of longitude, and that if we were to keep going on in that direction for the whole three hundred and sixty degrees, or the entire circumference of the earth, we should lose a day, and upon arriving at home should be one

day behind the people who had remained there since we left. We might think we were landing on Saturday, and start out to work or play before we knew it was Sunday. In taking a trip around the world in the opposite direction, we should find ourselves at the end one day ahead.

In order to have the same date all over the world, mariners going westward add a day on crossing a meridian of longitude fixed upon for that purpose, and going eastward drop one day. The meridian chosen is the one hundred and eightieth. When we crossed this meridian from Honolulu to Guam, the captain put up a notice in the saloon which read: "To-day is Saturday, to-morrow will be Monday." We have thus made our day of the week and month the same as at home.

It is interesting to know that for more than three centuries the Philippine Islands had a different day of the week from ours, because the early navigators did not know of this necessity for adjusting the date when they crossed meridian one hundred and eighty. They kept the same days of the week that they brought with them from the East, and the day they gave was adopted as the proper day of the week in the Philippines. At the same time, the days for Hongkong and the other countries about, which had been fixed by people coming from Europe, were the same as those of the rest of the world, so that Hongkong, which is only a few hundred miles from Manila, had its Sunday while Manila was having Monday. It was not until the 31st of December, 1844, that the matter was adjusted by dropping a day from the Philippine calendar.

We are surprised at the size of the Philippines and the space they take on the map of the globe. If we could lift up the archipelago, including the water within its boundaries, and drop it upon the United States, it would cover

about one fourth of our country. From north to south it is longer than the distance from Boston to Chicago, and from east to west it is wider than from Boston to Pittsburgh.

By far the greater part of this area is water, but the islands are more than seven thousand in number, and all together have almost twice as much land as New England, or about as much as the combined areas of Massachusetts, Connecticut, New York, New Jersey, Pennsylvania, and Delaware. Luzon (lōō-zōn') is as big as Ohio, and Mindanao (mīn'dā-nā'ō) as big as Indiana. Samar (sā'mär), Negros (nā'grōs) Panay (pä-nī') and Palawan (pä-lä'wän) are each about the size of Connecticut, and Leyte (lā'tā) is larger than Delaware.

The islands are largely volcanic. They contain mountains covered with valuable timber, and filled with coal, iron, copper, and other minerals, and valleys and plains where the soil is so fertile that it produces large crops of sugar, rice, coconuts, tobacco, and hemp, and all sorts of tropical fruits. The country is everywhere well watered. It has some navigable rivers and lakes and many excellent harbors.

The Philippines lie in the Torrid Zone, but the climate is good the greater part of the year, and so tempered by the winds from the sea and the mountains that our people can live here in comfort. The hottest months are April, May, and June, and the coolest are November, December, January, and February. There is also, in the interior and on the western coasts, a dry season from about the first of November until the end of May, and a rainy season between June and October.

These islands are not like New Guinea, which is a wild and sparsely inhabited by savages. There are wild men here, it is true, but the greater number of the inhabitants are Christians, and many others are partly civilized.

The population is large. When Uncle Sam adopted the Filipinos, he made a mighty addition to our national family. Our little brown cousins out here are about one eleventh of our whole population. That is, if Uncle Sam could put all of his people into one field and mix them thoroughly, one in each eleven would be a brown-skinned Filipino.

There are more than ten million people in the islands. The natives include three principal races, which in turn are divided into forty-three different tribes, each of which has its own peculiar habits and customs. There are, in the first place, the Negritos (nā-grē'tōz), who are supposed to have been the first inhabitants, and to have come from New Guinea. They are few in number, and are widely scattered. Next are the Indonesians (īn-dō-nē'shī-āns) comprising about sixteen tribes, found chiefly in the island of Mindanao. They are tall and strongly built and have light yellow skins, aquiline noses, and wavy black hair. Most of these tribes are only semi-civilized.

More important than the two other classes are the Malaysians (mā-lā'yāns), who form almost the whole population. They are the descendants of Malays who came here from time to time from Malaysia (mā-lā'shā) and intermarried with the Negritos and Indonesians, and also with the Chinese, Japanese, and Europeans who found their way to the islands. Of this mixed class, some are pagans, some are Mohammedan Moros, and the remainder, comprising the most of the Malaysians, are Christians. In addition to the natives, there are also some Spaniards and other Europeans, Chinese and Japanese, and a great many Americans.

But we shall see the people themselves as we travel over the country. The natives are different in different parts of the archipelago, and the islands may be divided into three zones, according to the predominant races that inhabit

them. The northern zone, where we shall first land, embraces Luzon and its neighboring islands. There live the people with whom we had most trouble when we took possession of the country.

South of Luzon and north of Mindanao is what might be called the middle zone. It consists of the Visayan (vê-să'yăn) Islands, which are inhabited by people who were more peaceful and not so courageous.

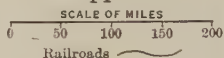
The third, or southern zone, is occupied largely by the Mohammedan people known as Moros. It includes the great island of Mindanao, the island of Palawan, and the hundreds of islands of the Sulu Archipelago, which may be seen dotting the water like a series of stepping stones from Mindanao to Borneo.

XXIV. MANILA, THE CAPITAL OF THE PHILIPPINES

IT is morning of our last day at sea. We wake early, and as soon as we are dressed go out upon deck. Just ahead of us are green shores, on which are houses and little white tents. As we look, a hydroplane rises gracefully from the water and soars up into the air like a bird, the sunlight glistening on its white wings.

We are off the island of Corregidor (kôr-râ'hê-dôr'), at the entrance to the harbor of Manila (mâ-nîl'à) the capital of the Philippine Islands. It was from this island that the Spaniards fired on Admiral Dewey as he sailed into the Bay of Manila to fight his great battle. It divides the entrance to the bay into two channels, and big guns have been placed on it to defend Manila from any enemy fleet

Our route among the Philippine Islands



that might attempt to enter the harbor. We follow the same course that Dewey took and are soon in the bay.

What an enormous body of water the harbor of Manila is! In its center we are almost out of sight of land, and the blue hills become a faint haze in the distance. It is almost one tenth as large as the whole state of Massachusetts, and storms often cause great waves on its waters. For this reason a concrete breakwater several miles long has been built around the mouth of the Pasig (pä'sig) River, where the wharves are. Steamers reach the wharves through a narrow passage in this breakwater. Inside the breakwater the harbor has been deepened, so that it can now accommodate the largest ocean liners. The earth that was dredged out from here was dropped down on the old shore, forming hundreds of acres of new land, now occupied by buildings and parks.

It takes us two hours to cross the harbor from Corregidor to Manila. On the way we see ships from China, Japan, Australia, and India. There are vessels from Europe, and from our Pacific coast, and United States battleships are lying off the naval station at Cavite (kä-vē'tā), on the right of the harbor. There are coastal steamers coming in from and going out to different parts of the Philippines, and sailing vessels from the many islands about. Saucy little tugboats are hauling huge barges called *cascoes*, steam launches are skimming over the waves, and ferryboats loaded with passengers for Cavite and other places are moving past us. There are scores of rowboats propelled by brown-skinned oarsmen, and fishing boats bringing their catch to the markets.

As we near the wharves, we see several great piers as long as those in New York City. Two of them are six hundred feet long, or more, and are equipped with steam cranes and

elevators. The one alongside which we stop is reserved for the United States Army. It is there that we bid good-by to our army friends and go on shore. We climb into automobiles, our baggage is piled into a motor truck, and we are off for our hotel.

The hotel is built on the new land made from earth dredged from the harbor, and across a park from it are other



A canal in Manila. Natives bringing their produce to market in boats.

new buildings. It is a large, handsome structure, with big rooms and many windows. What peculiar panes the windows have! They are pieces of seashells cut into squares a couple of inches wide and as thick as a piece of blotting paper. These are set into a framework of wood, making a checker-board of mother-of-pearl rimmed with black.

The shells are thin enough to let in the light, but they keep out the heat and the glare of the hot sun. There are thousands of such windows in Manila.

After a rest at the hotel we go out to see the sights of Manila. To get an idea of how the city lies, we visit the church of Saint Sebastian. A black-gowned priest opens the door, and with him we walk up and up the hundreds of steps of the spiral staircase to the top of the tower, where we have all Manila below us.

The city lies on a plain rimmed by blue mountains, and it skirts the bay for miles, extending far back into the country. We can see domes and towers of churches rising above the lower buildings, and green trees here and there showing above the roofs. Everywhere there are streams and canals, like those of the cities of Holland. The canals are filled with strange-looking craft, on some of which families of these brown-skinned people live and do business. That stream just below us is the Pasig (pā'sīg) River, which flows from the Laguna de Bay (lä-gōō'nä dā bāy), a lake not far away, to the Bay of Manila. On its north bank is the newer part of Manila, and on the south is the old walled city of the Spaniards.

Going down from the tower, we take motor cars to the business district, and then get out and walk through the streets. Here is the Escolta (ēs-cōl'tä), the chief shopping thoroughfare. The store signs are in Spanish, with now and then one in English. The old buildings are of Spanish architecture, their second stories having shell windows like those at our hotel. Reinforced concrete is used for many of the newer buildings, and the store fronts are of plate glass.

The Escolta is well paved, but the roadway is not more than thirty feet wide and the sidewalks are so narrow that

only two of us can walk abreast. There are electric lights, and trolley cars run through the center of the street. Everywhere there are motor trucks and automobiles of the same kinds that we have in our own country. We see also many *calesas* (cā-lā'sās), tiny two-wheeled carriages each drawn by a little pony. The pony is not much bigger than a calf. Every coachman is flogging his pony, and we wonder if the Filipinos know how to drive slowly.

The only slow things in the streets are the carabaos (kā-rā-bā'ō), or water buffaloes, dragging great drays loaded with hemp, tobacco, and all sorts of goods. There come two now, one following the other, and each pulling a dray. Jump into this doorway and wait until they pass.

Did you ever see animals so ugly? They are of the cow family, but I am sure no respectable American cow would acknowledge the relationship. Their skins look more like that of a pig, and the thin, bristling black hair so stands out upon them that you can see the dark skin shining through it. Most of the carabaos are black, although now and then we see some blond ones with white hair and a rosy red hide.

They are all very dirty, for they wallow in mud like pigs. They delight in the water and must have baths several times a day. For this reason the drivers of the carts stop now and then as they cross a river or canal, and allow their beasts to take a ten-minute bath. The huge animals lie down in the water, with nothing but their heads showing above the surface. We may see scores of them so bathing during any half-hour's walk along the waterways of Manila.

The carabaos are valuable to the Filipinos. They are strong and can plow and harrow the muddy rice fields. They haul drays in the towns and do all kinds of draft work and farm work. Provided they get their baths, they are gentle. The children are fond of them; boys and girls ride

them without bridle or saddle. Like cows, carabaos give milk, and their meat takes the place of beef among the poorer classes.

As we walk along, we have a good chance to see the people of Manila. We meet hundreds of men, women, and children, our brown-skinned cousins of the Philippine Islands.



Carts drawn by carabaos, or water buffaloes.

There are Filipinos of all classes, ages, and sizes. Some of the boys go along hand in hand, and some of the girls have their arms around the waists of their friends. The men and boys we meet on the Escolta and in all the better sections wear white duck or cotton suits, with hats of straw much like our own. The American men we meet are dressed in white linen; and as the weather is warm, the boys in our party decide to buy such suits for themselves. Many of the

women wear clothes like those of our mothers in summer, and others have on a mixture of American and Filipino dress. The upper part of this costume is a waist, over which is worn a gauze jacket with sleeves as big around as a three-gallon tin bucket.

Here we are in a street where nearly every store is owned by a native woman who sells the materials from which such costumes are made. Let us stop at one of them. It is so small that the proprietor has barely enough room to sit down. She sells native cloth made on hand looms in the homes of the people. One kind is called *pina* (pī'nă). It is a beautiful tissue made from pineapple fiber, and is used to make the sleeves and kerchiefs of the women. *Jusi* (hōō'sī) is a mixture of pineapple fiber with China silk. *Sinamay*, woven of hemp, is a coarser fabric used by the poorer classes for waists for women and shirts for men.

Turning a corner, we enter a quarter where nearly all the merchants are Chinese. The stores look like little caves cut out of the walls, and are so full of silks and cottons and other merchandise that there is no room for cases or counters. The goods are piled up on the shelves, hung from the ceilings, and even piled outside on the streets. The upper floors of the buildings extend over the sidewalk, and in the windows above we see yellow-skinned, almond-eyed women and children looking out.

The Chinese stores are grouped according to the articles sold in them. The dry-goods are in one section, the hardware stores in another, and in other parts of Manila we shall find streets given over to Chinese shoemakers, tailors, and sugar manufacturers. We meet Chinese shoemakers on almost every corner of the city. Each carries his tools about in a basket, and will squat down and mend a customer's soles while he waits.



A Filipino woman weaving cloth. The thread is made from the fiber of the pineapple plant.

There are more Chinese in the Philippines than there are in the United States. They control more than half of the business of the island, and they own some of the largest stores and industries. Many of them are millionaires. One wealthy Chinese owns large lumber mills, another has built up a huge business in rice and hemp, and another owns a fleet of coastal steamers that ply between the islands. In Manila alone there are three thousand Chinese firms, and out in the country we shall find Chinese stores at every cross road, and Chinese peddlers going from house to house.

Now let us cross the Pasig River over the Bridge of Spain and visit the oldest part of Manila. This section of the city is enclosed within a great stone wall two and a half miles long. When the Spaniards owned the Philippines this wall was surrounded by a moat. The moat has long since been drained and filled in, and as we cross it we see Filipinos playing golf on its green turf.

Inside the walls the houses are mostly of two stories, and are painted in all the colors of the rainbow. They have balconies hanging out over the narrow sidewalks, windows of pearl shell, and roofs of bright red tile. What is that green we see on the roofs? That is grass or other vegetation, which has grown from seeds dropped there by the birds.

The government offices of the Philippines are still in this old part of the city. We visit the home of the Philippine legislature, which was built almost two hundred years ago. Here we see something of the government of the islands. We learn that they have an American governor-general appointed by our President, and that he has what might be called a cabinet. All but one of the secretaries in the cabinet are Filipinos. The legislature has a senate and a house of representatives, some of the members of which are elected

by the people, and some appointed by the Governor-General.

Behind the legislative building is a Catholic university that was founded a year before our Pilgrim fathers landed on Plymouth Rock. Two thirds of the property within the walls of Manila belongs to the Catholic Church, and as we



A street in the oldest part of Manila.

go through the streets we meet priests and nuns in their somber gowns. Here, as in the new city, electric trolley car lines pass through the streets, and automobiles crowd us against the buildings as we walk along.

Our days in Manila pass pleasantly. We spend nearly every morning sight-seeing, and in the afternoons we stroll on the Luneta (lōō-nā'tà), the promenade along the water-

front. Here a band plays every afternoon, and the people come to listen to the music. Some sit on benches or in motor cars and carriages, others stroll about and chat with their friends. There seem to be thousands of Filipinos here every day dressed in European or native style, and many Americans, some of whom are soldiers and officers.



Palace of the Governor-General of the Philippines. Its window panes are made of pearl shells.

We take automobile rides out to the suburbs that skirt the bay, and we go in launches to Cavite, where we are allowed to go on board a battleship. Some evenings we spend at the theater or at the "movies," and one evening we attend a reception at the Malacañan (mäl-ä-cän-yän') Palace, the official residence of the Governor-General. The palace is a handsome building with huge windows of shell that may be rolled back to let in the air, and spacious rooms

with high ceilings. Surrounding the mansion are beautiful gardens, which during the reception are illuminated by hundreds of tiny electric lights.

XXV. FILIPINOS AT HOME—A VISIT TO THE MARKET

WE make many friends in Manila, and some of them invite us to their homes. We find that the upper classes often live as we do, with houses and furniture like ours. Others live more in Filipino style, which we find of interest. One of our calls is on the family of a Filipino official, in one of the suburbs. His house is a two-story building, with a beautiful garden about it, shaded by palms and other tropical trees. A wide drive leads to the entrance, and we go upstairs to reach the living rooms of the family. The better class Filipinos often live on the second floor, because it is more healthful well up from the ground. The servants have their quarters below.

Our friend's house has many large rooms with high ceilings and wide, airy halls. On the second floor there is a balcony around the whole house. The rooms open on this balcony, which is walled with windows of lattice work, with panes of shells. The pearl windows are moved back in the evening, and the air blows through the house, making it delightfully cool.

The house is well furnished. There are large tables, many chairs of bent wood, and sofas of woven rattan. We find a piano and a phonograph, for the Filipinos are fond of music. In the sleeping rooms, the beds are twice as large as ours, and each bed has above it a mosquito netting that is let down at night. There are no springs. The bedsteads are covered with cane like a chair seat, and a

thin comforter or mat takes the place of the thick mattress we have at home. In a warm climate like this, the chief thing is to keep cool, and we have already learned to like beds of this kind, although at first we rolled over and over, trying to find a soft spot. The pillows are of hair, stuffed hard, and each bed has a long, hard bolster for one to throw his arm or leg over while sleeping. We take dinner with the family; everything is well cooked, and the meal is not unlike our dinners at home.

Our next visit is to the home of a shopkeeper in a crowded part of the city. His house is on the level of the street. The entrance is through a garden about ten feet wide and twenty feet long, covered with a thatched roof through which banana trees have grown. The trees have extended their broad leaves over the roof, keeping the garden quite cool. There are seats on each side of the walk, and here we find several of the family sitting.

Our hosts rise and shake hands with us, and the mother leads us into the house. We first enter a narrow hallway with a little bedroom on each side and a dining room and kitchen at the rear. The latter rooms and the garden are where the family live during the day. Each room is about twelve feet square, neatly kept, but blackened with smoke. Very few of such houses have chimneys, and in many the cooking is done with charcoal, which makes but little smoke. In other places, such as this, sticks and bits of wood are used, and the smoke gets out as it can.

The dining room serves also as the parlor. It has a floor of red brick. Its furniture consists of two chairs and a cane-seated lounge, the latter being hung to the ceiling to be kept out of the way until needed. It is let down during our visit, and the wife of the merchant bids us be seated. She is a comfortable-looking, brown-skinned little woman

with white teeth and a pleasant smile. She shows us the sleeping rooms on each side of the hall. Each room is just wide enough for the bed of split bamboo poles fastened to a framework of larger bamboos. The people prefer to sleep on such poles rather than on hair, feathers, or straw.

We go with our hostess to the kitchen. The stove is merely a ledge of bricks and mortar running along one side of the room. In the top are four holes, each about as big as a tin wash basin, with another hole cut through the ledge under it to furnish a draft.

In each hole burn about a dozen sticks laid one on top of another. Upon the fire rest bowls of black clay, in which the family dinner is being cooked. Our Filipino friend lifts up the lids of the bowls and shows us their contents; she asks us to stay for dinner.

The first bowl contains rice, the second fish stew, the third boiled beans, and in the fourth is a hash of vegetables and pork cut into small bits. The smell is delicious, but our time is so short that we can not accept her kind invitation.

We spend one day in the poor quarter of Manila, which is known as the Tondo (tōn'dō). Even here the wider streets are of asphalt, but behind them, on the outskirts, we find great warrens of houses made of bamboo and palm



Filipinos cook in bowls of clay.

leaves, in which whole families live in one or two rooms. This part of the city is subject to fires ; indeed, it has been burned down again and again. It costs only a few dollars, however, to build one of these shacks, and they rise up like magic from the ashes.

Hear the people talking as they move onward. Some of them speak Spanish, others speak English, most of them speak Tagalog, the native dialect of the central part of Luzon. Now and then a girl laughs, showing her white teeth. The Filipinos are by no means bad looking. They are straight and well formed, although not so tall as we. They have black eyes, almost slanting, and coarse black hair. They look clean, and we learn that most of them take a bath every day. See those two women with their hair down their backs? They have come from a dip in one of the canals, and can not do up their hair until it is dry. Other women wear their hair in great knots on the tops of their heads. Many of them are bareheaded, and most of the boys have no hats.

The women and girls wear the same kind of native dress we saw on the Escolta, except that cotton here takes the place of silk. Take a look at the men. What would you think if half the men and boys of your town should walk about with their shirts outside their trousers? They do so here. It seems strange at first ; but it is cooler to wear one's shirt that way, and we must remember that we are not far north of the Equator. Some of their shirts are so thin that we can see the brown skin showing through.

In this part of Manila we visit the largest market in the city. It is a building of concrete and steel, with a roof of corrugated iron, and a floor of black and white tile. There are no walls, and the breezes from the sea and the river blow back and forth through the structure.

Here the Filipinos come in from all parts of the country, to buy and to sell, and here the natives of the city get their supplies. All night the roads are filled with *carretelas* (cā-rě-tě'lās), or carts, drawn by ponies, with huge drays dragged along by water buffaloes, and with motor trucks bringing in food and wares of all kinds. These vehicles take the place of our railways.

The merchandise is sold in little cells in the market, each of which is managed by a woman merchant. Much of the business of the islands is carried on by women, and there are thousands of them buying and selling in the market to-day. Some have on white gowns and jackets, but the majority wear red, black, brown, pink, green, or yellow clothing, making a rainbow of colors.

Let us start here where fish are sold. The fish bazaar reminds us of a great concrete laundry. The fish are of all sizes, from that of a pea to as big as a man. We see one, known as *lapu lapu* (lă'pōō), weighing thirty pounds. Near it on the floor tied to the iron fence by its tail, is a live turtle as big as a washtub. As we look on, it opens its mouth and snaps its jaws at us, and we are thankful that our toes are out of reach. There are octopuses with bodies as big as your hand, and with eight long, slimy, transparent legs hanging down from each jelly-like form. There are lobsters, sharks with skins as thick as a blanket, and little round shiners that look like twenty-five-cent pieces.

Now we have come to the poultry and egg department. Here we find one of the queerest edibles we have ever seen. It consists of duck eggs that have been kept warm until they are almost ready to hatch, and then cooked. We are offered some for a nickel apiece, but none of us cares to try them. There are also fresh eggs for sale, as well as chickens, ducks, and geese. There are many kinds of birds, from

tiny little singers, no bigger than your thumb, to wild ducks of fairly good size.

Passing the meat section, we go on to the vegetables and fruits. There are so many of each of these that to name them all would take a long time. One of them is the huge purple bud that grows at the end of a bunch of bananas. It looks like an ear of corn in the husk, and it is cut up and served as a salad. There are other flowers and greens used in the same way. There are turnips and carrots, green watermelons, and scores of tropical fruits that we do not have in the United States. One of these is the papaya (pä-pä'yä), which looks like a green squash on the outside, but within is as yellow as gold.

And then there is the mango (măṅ'gō), a delicious golden fruit as big around as your fist, and often six inches in length. It has a long, narrow seed surrounded by flesh that is deliciously sweet. There are oranges of every description, and breadfruit, which has a green warty outside but is soft and mushy within. There are purple mango-steens, which have a crimson and snow white flesh that tastes like ice cream. There are beans long and short, peas different from any we have ever seen before, and *cincomas* (cĭn'co-mäs), or sweet turnips as big as a baseball. The natives eat these as we eat apples. Another fruit is that of the chicle, from the bark of which comes the sap used in making chewing gum.

What are those nuts piled in front of that woman peddler? On the same counter is a mass of wet lime. A girl has stopped to buy, and, as we look, she picks up one of the nuts and bites into it. Her gums seem to be bleeding and her tongue is bright red. That is a betel (bē't'l) nut, which comes from a kind of palm tree. It is chewed by many of the people here much as is gum in our country.

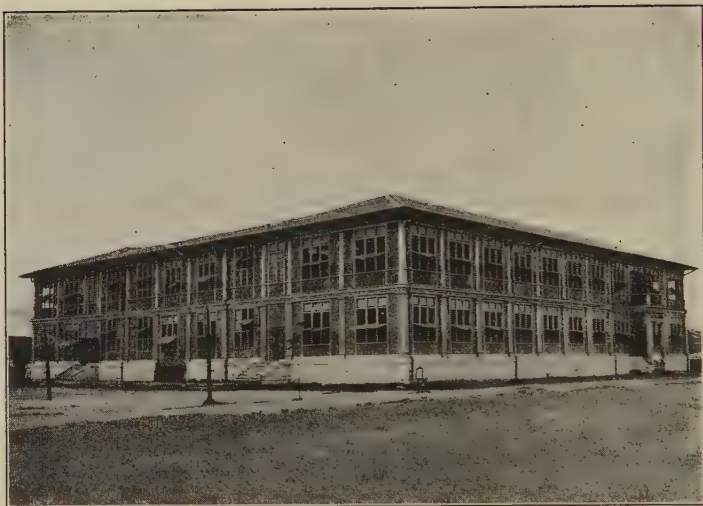
The nut is ground or cut up and mixed with lime before it is chewed. It colors the saliva red and often stains the teeth black.

As the girl buys a new supply of betel nuts, the market woman wraps them in palm leaves for her. These women merchants wrap meat, fruit, and other things in banana leaves, which they cut from their own trees. A bit of rice straw takes the place of a string, and a thorn may fasten the leaves together, instead of a pin.

XXVI. OUR PHILIPPINE COUSINS AT SCHOOL

TO-DAY we are going to see the Filipino boys and girls at school. It is true that some tribes of the Philippines are wild and uncivilized, but here in Manila nearly every boy and girl receives an education. Manila has ninety-one public school buildings and many private schools. All together, there are more pupils going to school in this city than there are in Seattle, New Orleans, Cincinnati, or Washington, D. C. There are primary and high schools, normal schools, trade schools, private schools, academies, and several large universities.

There is no such thing in these islands as a boy or girl who does not want to go to school. On the contrary, the children are anxious to learn, and each morning they dash off on the run. They are proud of the fact that they are learning to speak and read and write English. All the different peoples of the Philippine Islands are now learning to speak this same language. There are twenty-six thousand teachers using it in their schoolrooms, and more than one million children learning it in schools all over the islands.



A school in Manila.



Pupils at a Philippine school.

It is interesting to know also that nearly all the schools in the islands are managed by the Filipinos. Out of the twenty-six thousand school teachers, all but a few hundred are Filipinos, and the money for their salaries is paid by the Filipinos themselves, not by Uncle Sam.

We hire automobiles for our visit to the schools of Manila, but even so we shall not have time to-day to visit a tenth of



A drill in a school playground.

them. We find that every one has flowers and tropical plants about it, and that nearly all have school gardens. They have playgrounds as large as those in the United States, and nearly every school has its baseball and track teams. In front of every building float the American and the Filipino flags, and the children salute these two flags every morning. Each day they sing "The Star-Spangled

Banner" and follow it with their own national song "Philippines, My Philippines," which is sung to the tune of "Maryland, My Maryland." In every school building are pictures of George Washington.

The buildings are mostly of two stories. The old ones are made of concrete, and the new ones of wood on a concrete foundation. Many of them have from forty to sixty rooms and between one and two thousand pupils. Often such a school is built around a hollow square with wide galleries along each story.

Let us enter this school where we have stopped. The halls are wide and high, with floors of red tiles. The windows have panes of the pearl shells of which we have seen so much in Manila. It has thirty-six class rooms, a kitchen, a carpenter shop, the school offices, and a library.

The school rooms are on each side of the halls. Each room is twenty or thirty feet square and has a high ceiling. The walls between the rooms are doors that can be folded back, so that within a few minutes the whole row of rooms on one side of a hall can be thrown into one.

The school furniture is made here in the Philippines, and sometimes it is the work of the children themselves. Every school room is well supplied with desks, blackboards, a sand table, maps, and pictures.

Notice the clothing of the children! Most of them are dressed as our boys and girls in the schools at home. Those three little girls over there have on thin white dresses. Some wear shoes and stockings, but most of the children are barefoot. Some of the boys wear white shirts hanging outside their white trousers, and others wear dark shirts or sweaters. A number of the girls have their hair bobbed, but there are many also who wear it in braids. The dress of the teacher is made of the thin gauzy material

we have already seen on the streets, with wide sleeves reaching below the elbow. Another teacher, who has just come in, wears a white waist and a skirt of printed cloth. The school regulations require that every boy and girl must come to school with his clothing in order and with clean face, hands, and finger nails.

As we stroll through the building we stop now and then to talk to a teacher, to listen to a song sung in English by the children, to hear a class recite its lessons, and to ask the children questions of one kind or another. The boys and girls seem anxious to show what they know, and when we ask a question, hands go up all over the room.

Now it is recess. A gong beaten by a boy calls the pupils to order. Some one plays the piano, and each class forms in line and enters the hall. We ask permission to join one of the lines and march with them in double file to the playgrounds. What fun every one has here! Some of the fourth-grade boys and girls are running races. In another part of the ground they are playing leap frog, and farther on "Ring Around the Rosy" and "London Bridge is Falling Down," singing the words in English.

After ten minutes the gong sounds again and the games are ended. For the rest of the recess period the pupils do as they please. Some get out their lunch and eat it. Lunch is cooked in the school by the older children, and those who do not bring it with them can buy it for less than five cents in United States money.

In the afternoon, we visit rooms where embroidery and hat making are taught. The teaching of embroidery begins as soon as a girl enters school; in fact, some of the beautiful pieces we have seen in the United States are the work of such pupils. The boys learn to weave hats and baskets,



Filipino girl weaving a hat.

and the older girls to make their own clothes. We are told that nearly every Filipino woman does exquisite needlework, and that many earn their living that way. Nearly all of us have seen in the stores at home blouses and underwear that have come from here, adorned with fine embroidery. Other women weave hats that look much like

Panamas. Most of these hats are made in Baliwag, not far from Manila, which is known as the "hat town."

1. When and by what European were the Philippine Islands discovered? What water passage off South America is named for him?
2. By whom were the Philippines formerly owned? How did we get them, and when?
3. How does the land surface of the Philippines compare in size with the United States? What are the largest islands? On which one is Manila? Into what three groups are the islands divided?
4. What are the chief products of these islands?
5. From what Asiatic race are most of the Filipinos descended?
6. What famous battle was fought in Manila Bay?
7. What race owns most of the stores in Manila?
8. How are the Philippines governed? Describe a day in a school. What two important occupations are taught in the schools?

XXVII. THROUGH THE COUNTRY BY
RAILWAY

WE leave Manila this morning for the interior of Luzon, to see something of the Filipinos on their farms and in their towns and villages. Our journey will last several weeks, for Luzon is the largest island of the Philippines and includes more than a third of all the land. It has about half of the entire population of the islands and is the best developed and the wealthiest of all. It has many resources, and during the journey we shall see some of the chief industries of the archipelago.

Our first trip is through the rich valley that runs from Manila northward to the Gulf of Lingayen (lǐngä-yěñ'). This valley is more than one hundred miles long and in places fifty miles wide. The first railroad built in the Philippines runs through it. We board the train at Manila, and as we leave the city and reach the open country, we see on each side of the valley mountains as blue as the Alleghenies, rising and falling in rugged beauty. We pass a village every few miles, the thatched huts half hidden by clumps of banana trees. The people here do not live on the farms, but in villages, and the towns are scattered along the roads. Many of the farmers walk several miles to their work every day.

Carabaos and ponies are grazing in the fields, and gangs of men and women are at work. Here and there is a little patch of green corn, and now and then a field of sugar cane. Everywhere the country is dotted with groves and clumps of bamboos. The roads are lined with them and the towns surrounded by them. Their round stalks are as high as a six-story building, and their branches quiver in every passing breeze.

The most important crop of all is rice. There are but few fences, and we can look over miles of level rice fields. They are now gray after the harvest, but green where the vegetation is sprouting through the cut-off stalks. The fields are small, and each is surrounded by little grass-grown walls to keep in the water needed when the rice is



A thatched hut, with window shutters opened for coolness. Its thin, light walls are of woven palm leaves.

growing. It is now the hot season, but during the rainy season it pours for days and days, and at times almost in streams.

The walls that hold in the water are about eight inches wide and perhaps a foot high, and they inclose squares of land ranging in size from a city lot to an acre. The whole country reminds us of a giant checkerboard. On the tops of the walls is grass spotted with flowers. As the water falls,

the walls form the paths of the country, and some are worn smooth by the bare feet of the people. Other parts of the valley have a slight slope, and some rise gradually in terraces.

See the Filipinos at work in the fields! They are even more picturesque than their surroundings. There are hundreds of brown-skinned women, many of them dressed in bright red. They wear short jackets and brown hats as big as bread bowls turned upside down. Their skirts are often tucked up above their bare feet. The men wear their shirts outside their thin cotton trousers, and most of them have big hats like the women. There are children of all ages, some dressed like their parents and others with almost no clothes at all.

Here and there we see a little stack of rice straw in the field, and now and then pass a tract of wild land that gives us some idea of the wonderful fertility of the soil. The grass that grows here is twice as high as our heads.

Harvesting the rice is a great event in the Philippines. The whole family of the farmer engages in it. The people get up long before daybreak and come out to cut the ripe grain. Some of the cutting is done with a little knife like a triangle. The rice is clipped off, stalk by stalk, the knife being held in the palm of the hand. The heads are then tied up in little bundles and carried home to be threshed.

What are they doing there on the left side of the railway? There are two men and four women hanging on to a bamboo pole held up by bamboo stakes driven into the ground. They are jumping up and down on the rice straw that lies under their feet. That is the human threshing machine of Luzon. They are treading the rice grains out with their feet. In other places, we see the outer kernels being pounded off the rice in wooden mortars, with great wooden



The old human threshing machine of Luzon, field workers treading out the rice grain with their bare feet.



A modern threshing machine in operation.

pestles. The winnowing is done by the wind. The rice is thrown up into the air again and again and the grains are caught in a tray. On some of the larger farms we see threshing machines, and on others ponies and carabaos are driven around over the straw to tread out the grain.

As we go on, we look in vain for cows, sheep, or horses. The only animals visible are the water buffaloes, with here and there a few black razor-backed pigs. The water buffaloes are never out of our sight. They graze by the roadside, they wallow in every pond and mud-puddle, and they drag great



Pounding rice with wooden pestles.

carts with wheels a yard in diameter, or perhaps rude sleds. The ground of the wet rice fields is soft, and in some places wheeled vehicles cannot be used.

The buffaloes are ridden as well as driven. After work,

the men usually ride them from the fields to their homes, and we often see one in a pasture with a brown-skinned boy or girl on its great flat back. Everywhere in the pastures they are ridden by birds also. See this one with a white crane roosting upon it, and that one with a crow sitting on its shoulders. The crow is pecking at the buffalo, but the buffalo understands and does not object; he knows that the crow is a good fly catcher and is eating the insects on his back.

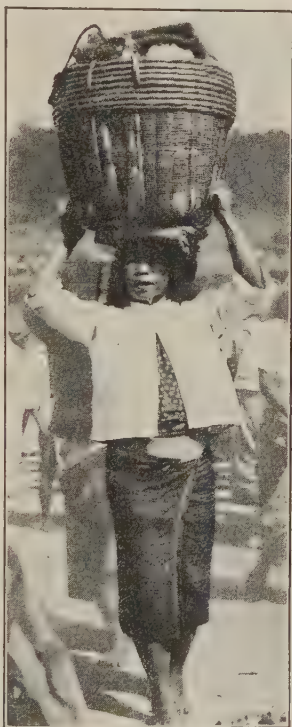
Farther up the valley we come into a region where the soil is better fitted for sugar. For miles we see nothing but cane. Here and there men are plowing with water buffaloes. How rich the soil is! The newly turned ground forms islands of black in the ocean of green. See those barefooted girls planting the crop, laying the bits of cane end to end in the furrows, just as they did in Hawaii. How crude everything is! In the Hawaiian Islands there were steam plows and all sorts of labor-saving machinery. Here the work is still all done by hand. The girls are even using their bare feet to cover the cane. It is only on a few of the larger plantations that we see modern farm machinery.

In other fields they are cutting the ripe cane and carting or sledding it to rude mills, where the juice is squeezed out and reduced to coarse sugar. Sugar is one of the chief products of the Philippines, and we shall see many sugar plantations in the Visayan Islands farther south.

We cross several rivers during our journey. The Philippines are well watered. There are brooks and creeks every few miles. The banks are lined with trees, and in the shade we frequently see boys fishing. The larger streams have boats on them, and we often pass a raft of timber or bamboo poles floating down to the market.

Now we have stopped at a station. Women peddlers with all sorts of wares come to the car windows. They carry their merchandise in baskets resting on their arms or on the tops of their heads. Here is a girl bearing on her head a huge wooden bowl. It is filled with ripe mangoes, the odor of which makes our mouths water. Behind is a boy with his arms full of peeled sugar cane, and at the next car window is a woman who offers us cooked fish wrapped in banana leaves. Others are selling candies and cakes, and one has a basket filled with the half-hatched duck eggs we saw in the Manila market.

The crowd moves back and forth. It is quiet and orderly, and there is less bustle than at our railroad depots at home. Piles of freight are being taken off and put on the train. Directly opposite our car window are baskets filled with ripe red tomatoes, and beside them are stacks of rice bags ready for loading. In front of the tomatoes is a Filipino woman with a gauzy waist and a red calico skirt that just touches her bare feet. She has gold rings on her fingers and gold rings in her ears. Others of the people wear slippers without heels.



A peddler.

At our next stop, we have time to get off the train and stroll about the village. The best and largest building is the schoolhouse. It is well lighted and clean. There are such schoolhouses in every town and on every country road in Luzon, and now and then we see the children playing outside them.

Every village of any size has a plaza, facing on which is a church, the government offices, and some of the best dwellings. On the other streets, surrounding the plaza and often running for miles along the roads out into the country, are thatched huts, some large and some small, made of a framework of bamboo poles with walls of split cane woven like a basket. They are roofed with grass or nipa palm leaves. Many of these buildings are from three to six feet above the ground in order to be out of the way of the water during the rainy season. In the farm dwellings the first floor is so high that the carabaos and other live stock of the owner can stand under the house in the heat of the day. The same space often forms a shelter for the farming tools, carts, and sleds.

The country town houses of the better class are often large and commodious. They may have a first story of stone and a second of wood, and they may be surrounded by beautiful gardens. Indeed, many of them have all the comforts that we have. Some of the larger towns are now lighted by electricity, but most of the villages have only oil lamps.

Beyond Dagupan (dä-gōō'pän) we strike out into a low region cut by waterways, and soon afterwards come into a coconut country. We ride for miles in sight of ragged, drunken-looking trees that lean this way and that as the winds have blown and twisted them. The smell of the sea floats in through the car windows, for we are now near

the coast of the Lingayen Gulf. We pass through more villages of palm-thatched huts, and now and then cross a stream or an arm of the sea. Away off at the right we can see tall smoky mountains half hidden by clouds. Now we are coming to the village of Damortis (dä mör'tis) and the end of our journey by train.

XXVIII. BAGUIO AND THE IGOROTS

BEFORE leaving Manila we telegraphed ahead for automobiles to meet us at Damortis. They are waiting when we arrive, and we leave at once for Baguio (bä'gê-ō), high up in the mountains. The way is over the Benguet (bên-gêt') Road, one of the finest highways in the world. It is macadamized from one end to the other, and is always kept in perfect condition. We meet half-naked men and women of the Igorot (ē-gō-rōt') tribe dragging stones from the cliffs and with rude hammers of steel breaking them into bits. The stones are afterwards crushed fine by machinery and used to repair the road.

In the heart of the mountains the road is so narrow that motor cars cannot pass, and as we wind our way around the curves a skid might drop us into the rocky cañons. We go over long wooden bridges just wide enough for one car, and stop again and again at certain wider spaces to wait for automobiles coming down. At each of these places stands a Filipino guard who telephones to the stations above and below him to notify them when cars are approaching.

We pass many villages, and in nests of the hills we see Igorot camps, little groups of thatched huts from twelve to twenty feet square with walls of wood under the straw.

There are many porters on the road. Women as well as men carry loads in great baskets on their heads or their backs, held on by a rope around the forehead. There are also Americans and Filipinos in autos. At Hot Springs, about half way up, we see an American girl watering a



The Benguet Road that winds through the mountains.

lawn, and at the next gate we wait for a limousine containing four bare-headed Filipino ladies.

After twenty miles of such riding we come to Baguio, the favorite mountain resort of the Philippines. It is in a beautiful valley, or rather a series of valleys, with rolling hills surrounding them. This natural amphitheater is watered by many streams and bordered by pines, tree ferns, and other plants of the semi-tropical zone. There

are wonderful orchids, and slopes covered with grass as green and smooth as the sod of England.

Baguio contains the summer residences of many Americans who do business in Manila. It has a big hotel, a moving picture theatre, and a school for the Igorots. The city is the home of the governor of the Benguet province, and it has thousands of Igorots within it. It is so spread out over the hills and valleys that we spend many hours riding about in our motor-cars. The business part of the town and some of the chief buildings lie in the beautiful amphitheatre. In the center is a lake upon which people are paddling canoes. High above the lake is the city hall, a long, low, two-story building, with flower gardens dropping in terraces to the road that runs near the lake. On the opposite side of the lake are the fine government buildings. Away up the mountainside is the rest house of the Dominican friars.

We drive out to the Baguio Country Club, which is about two miles from the heart of the city. The roadways are bordered with flowers in beds walled with stone. Geraniums, roses, and pinks cover the terraced hillsides. There are great blue hydrangeas and long-branched red bougainvilleas as big as your head.

A few miles farther out we visit the Benguet gold mines, which are owned by Americans living in Manila. They are operated by Americans, but the mining is done by natives. We are taken through the mines by the American superintendent, and we watch the almost naked Igorots as they dig out the ore. We are told that gold exists throughout the islands from the northern part of Luzon southward almost to Borneo. The total annual output of this precious metal is now worth more than one million dollars.

Another place we visit in our motor rides about the surrounding country is Camp John Hay. The soldiers sta-

tioned here are Americans, Filipinos like those we saw in Manila, and Igorots. The Igorots have with them their families, including not only their wives and children, but also their parents, grandparents, uncles, and cousins.

The camp is like a great landscape garden. There are tall pines and hardwoods, and fern trees as high as a one-story cottage. There is an Italian sunken garden, a fine golf course, and a wonderful open-air theater. The camp has hundreds of acres of green lawns, miles of fine roadways, and the barracks where the Igorots live are more comfortable than anything they have ever known. The soldiers have an electric light plant, a cold storage plant, shops of all kinds, and a commissary store.



An Igorot miner.

The commander of this army post has charge of keeping order in the mountain province. He has established an Igorot village where the former savages are learning how to improve their living conditions. They have built comfortable frame houses to take the place of the shacks they have in their villages, and are being taught how to live in a clean and sanitary way.

The Igorot soldier learns many things. He is taught first how to fix a window or door, to lay up stones, to shoe a horse, to repair a wagon, and to drive mules. Later he learns how to build a house; and when he leaves the camp and goes home, he often puts up a house for his family like the ones he had here. During his stay he is given some schooling, and his children learn a great deal.

Uncivilized Igorots often cut off the heads of their enemies and carry them home as trophies. The government has been able to stop most of this head-hunting, but it still occurs now and then. Another head-hunting tribe is the Ilongots (ê-lôn-gôts'). During one of our trips into the mountains we meet a party of five of these natives under a guard of two Filipino soldiers. They have killed a man and cut off his head, and are on their way to prison.

The Ilongots are far more savage than the Igorots. They live for the most part in the forest, sometimes having houses in the trees. Some of them have woolly hair and black beards. The women often wear short skirts of bark cloth,



A girl of the Ilongot tribe.

and the men arrange a peculiar hair-net over their foreheads.

Some distance from Camp John Hay we visit an Igorot farm school established by the government. It is managed like a little republic, and elects its own rulers and has its own police. There are a hundred or more boys here at work. Each day they spend four hours in the classroom



Igorot girls learning to sew at a mission school near Baguio.

and four hours in farming, during one hour of which they work for themselves. Each boy sells what he raises and receives the money for himself. Many of the boys earn their way through school. One of them tells us he has saved three hundred dollars. He has rented twelve rice fields from the school, and has other boys working them for him.

Nearly all of the school buildings and the tables, beds, and school desks have been made by the students. The boys learn blacksmithing, carpentering, masonry, and everything needed for the work of the farm. Some of them are learning to be chauffeurs and automobile mechanics, and many are fitting themselves for teaching.

We are at Baguio over Sunday, and spend some time at the Sunday market. On that day the natives come from far and wide, on foot and in carabao carts, bringing their wares in to sell, and carrying back home the things they buy here. The market house is in the center of the city, but the buying and selling goes on also along both sides of the road for a half mile beyond. There is a great field covered with half-naked peddlers sitting on the ground under bamboo screens. Some of the men who come in from the wilds wear nothing but a loin cloth, but most of them have skirts or jackets that reach to their thighs.

The Igorot women wear jackets that fall to the waist, and their skirts are of blue and white striped cotton cloth. Most of them have a wide band of cloth bound around their foreheads, to hold in their long black hair. Both men and women chew betel nuts. Many of the women smoke cigarettes, and it is not uncommon to see one smoking a cigar eight inches long. Some wear necklaces of beads, and some girls have bracelets of brass.

XXIX. IN THE WILDS OF LUZON

TO-DAY we start on a trip through the wildest part of Luzon. We shall go from Baguio to Aparri (ä-pär'rē), a port on the north coast of the island. We begin the journey by automobile, over the road that is being cut north and south through Luzon. When it is completed, it will



We begin our journey over Luzon by automobile.

open up the Cagayan Valley, which has rich tobacco and rice lands, and it will form a highway over which one can go by automobile or motor bus from Manila to the north coast.

Like the Benguet road, this road has caretakers to fill in holes, dig out the grass, and gather up any refuse. Every caretaker wears a calico uniform consisting of a blue shirt and red trousers, and we can see him long before we reach him.

The road climbs about three thousand feet over one

range of mountains, and then drops into a valley. It goes over other mountains, winding about like a corkscrew. We cross long bamboo bridges and sometimes pontoon bridges that rattle as our automobiles go over them. Sometimes we cross the streams on ferryboats. As we ride farther we drop down into valleys where homesteaders have taken up new lands. We meet caravans of carts, with covers of bamboo basket work that remind us of the covered wagons in which our own pioneers crossed the western plains of the United States. Each cart contains a family. Sometimes an extra carabao or pony follows it, and one family has six dogs. We meet also motor trucks, loaded with passengers and freight.

The villages we see are collections of thatched huts built upon posts and shaded by coconut or banana trees. Every village has its schoolhouse, even if it is nothing but a hut made of bamboo canes or boards. Every school yard has its garden and playgrounds, and each day we meet boys and girls on the roads going to and from school.

Next to chicken, pork is the chief meat of these islanders, and we see pigs everywhere. Men carry pigs to the market, strapped to their backs, and we often pass a boy with one in his arms. In one of the towns we see a woman leading a hog by means of a clothesline fastened to holes in its ears.

After a while the road becomes too rough for automobiles, and we have to hire ponies. Sometimes we follow the streams in boats, and sometimes we ride in chairs, each borne by four natives. At night we sleep at a Filipino home in a village, or in a rest house out in the wilds. We often pass little fires about which natives are sitting cooking their meals. They sometimes get up and salute us, and one of them calls out in English, "Good morning," as we ride by in the darkness.

There is plenty of life in the jungle, both day and night. See those monkeys jumping from branch to branch and chattering as we pass! There are strange birds that have a cry like that of the laughing jackass of Australia. Another queer bird is the *calao* (cä-lä'ō). It has a black head and breast, a white band under the chin, and tail feathers of dull gold. These calaos are said to cry out every day at high noon. They are sometimes called hour birds, and their name means "clock of the mountains." Our guide tells us they cry out only once every hour, but it seems to us they sing all the time.

A part of the trail is through the beds of mountain streams. It is walled and roofed with bamboos and vines, which form a green arbor several miles in length, and so thick at both sides and on top that the hot sun cannot get through. The vines grow so low in places that we have to hug the necks of the ponies to keep our heads on our shoulders. There are immense trees on both sides of us, and looking up we can often follow their trunks with our eyes for one hundred feet or more to where the first branches begin.

Now we go through a grove of fern trees with branches fifteen feet long and leaves of feathery lace, and now over hills covered with cedars and pines. Everywhere there are orchids and strange flowering plants. More than half of our Philippine territory is covered with timber, the forests forming much of its wealth. There are hundreds of varieties of native trees, among them fifty species from which rubber, gutta percha, and other gums are extracted. There are also banyan trees with great roots extending down from their branches. There are forests of the most beautiful hard woods, including ebony and the Filipino mahogany, and bamboos seem to be everywhere.

The bamboo grows in clumps of from a half dozen to two score or more stalks, which shoot up to a height of forty or fifty feet. The stalks are green, with knots like those of a fishing pole, and at each knot there are little branches with leaves not unlike grass. The stalks are of all sizes, some as small as a baby's finger and others as big as a man's leg.

The Filipino uses the bamboo for almost everything. The cane forms his milk can and water bucket. He splits it into pieces and weaves it into baskets and hats. He fastens it to a block of wood and makes a candlestick, or with a shorter section an inkwell or a cuspidor. The farmer uses rakes and harrows of bamboo, which he hauls to the field on a bamboo sled hitched to a carabao by a bamboo yoke. He may even drive this with bamboo reins. The fisherman has nets and fishing traps of bamboo. Water is carried over the fields in bamboo pipes, and many bridges are made of bamboo. Some of the houses have a bamboo framework with walls of woven bamboo splints, looking like basket work, and floors of bamboo poles. The native climbs into such a house up a ladder of bamboo, sits on the bamboo floor upon a bamboo stool, before a table which may have bamboo legs, and he eats the shoots of the young bamboo, which are as delicious as any of our green vegetables at home.

In the heart of the mountains of Luzon we reach Kiangnan (kē-än-gän'), the capital of the Ifugao (ĕ-fōō-gä'ō) tribe. The Ifugaos are known as savages, yet they have built here some of the most wonderful rice terraces in the world. We find whole mountainsides made into steps that rise from the valley almost to the skies. They go up one side of the mountain and down the other. Each step is a little field of rice plants walled with stone and earth to hold in the water which is necessary for growing rice.



Rice fields in terraces, built by the Ifugaos, rise from the valley, up the steep hillsides, one above another, almost to the sky.

How beautiful the terraces are! They curve this way and that according to the shape of the mountains. Often they rise like the steps of a grandstand. Just now the rice is about as high as our knees. It grows in bunches or stalks in the water. Here and there it rises above the walls. We walk along on some of the walls, but we have to be careful not to miss a step. If we do, we shall sink to our knees in the mixture of water and mud.

The Ifugaos are a brown-skinned people, with black hair, dark eyes, and fairly good features. Most of the men are dressed only in strings, and the skirts of the women are wrapped tightly around their bodies. The hair of the men is cut so short that it stands up all over their heads. The women wear their hair down their backs. Both men and women wear a band around their foreheads.

There are more Ifugaos than any other wild tribe of the Philippines. They have their own laws and customs and their own classes of society. They are not Christians, and they have a different government from that of the Christian Filipinos. Their country is ruled by a man appointed by the Governor of the islands, instead of by officials elected by the people themselves.

The Ifugaos are divided into clans somewhat like those of old Scotland. The nobles are known as *kadangyangs* (kă-dăng-yăngs'). They own many of these rice terraces, and the way they become elevated to the nobility is by giving a feast to the clan. The richer a man is, the more feasts he must give. Below this high class there is a second or middle class, whose members have just about enough rice fields to support them. They are called *natmoks* (năt-möks'). The people of the third and last class have no rice fields, but work for others.

Let us visit some of these Ifugaos. There are little col-

lections of huts scattered in and out among the rice fields on spots that cannot be irrigated, or on the tops of the hills. There are a dozen houses or so in one little settlement. Each house is built on posts as high as your head, and each is occupied by one family. The houses are about fifteen feet square and have roofs of thick thatch. The posts on



Under this Ifugao hut hang cages in which fowls are kept at night.

which they rest have knobs at the top so that rats cannot climb over them into the huts.

What are those bamboo baskets hanging to the floor of this house? Those are chicken coops, in which the chickens, little and big, are put at night to keep them out of the way of rats or wild animals. The doors of the coops are kept open until it gets dark, and then a little grain brings the chickens flying to their bedrooms for the night.

The entrance to this home is a ladder. The floor is of bamboo canes through which the dirt falls to the ground. The only furniture is a shelf of bamboo that sometimes serves as a bed. The stove is a fire box filled with earth, and the cooking bowls of pottery rest upon stones above the fire.

The Ifugaos now go to school, and some of the boys are attending the farm schools and colleges. Nearly all of them have given up head-hunting, and many of them are good citizens. The soldiers here at Kiangang are nearly all Ifugaos. There is a large school at Kiangang, with Filipino teachers. The girls wear skirts and jackets, and the



A man of the Kalinga tribe.

boys have coats and often but little else. The children speak English. There is a hospital and one or two stores.

Other strange tribes we meet on our travels are the Kalingas (kä-lēngä) and the Negritos. "Negrito" means little Negro, and this word describes them well. They are a race of black pygmies with woolly hair, thick lips, and flat noses. Most of them are naked save that the

men wear a cloth about their loins, and the women a strip of cotton or bark forming a sort of skirt that reaches from the waist to the knees. Some women have also strings of beads around their necks. How ugly these people look! Their legs are spindling, their stomachs swell out, and their foreheads sink in. They are mentally and physically weak, and are as degraded as any savages we have yet seen.

The Negritos have no fixed homes, but wander from place to place, sleeping in caves and in little shelters of bamboo poles bound with grass. Some raise patches of rice or Indian corn, but most of them live upon roots, wild fruits, and such game as they can find in the woods. They hunt deer and wild hogs with bows and arrows, and sometimes trap them with loops of rattan, spearing the animals when they are so tangled up in the loops that they cannot escape.

At last we reach the Cagayan Valley, which contains some of the best tobacco lands on earth. This is the chief tobacco raising region in the Philippines, although the leaf is grown also in many other parts of the islands. This valley is, if anything, more beautiful than the region we have just left. The mountains are covered with trees, and on their lower slopes are thousands of patches of the rich dark green leaves of the tobacco plant. Here and there we see a great shed, thatched with palm leaves, used for curing the tobacco, and now and then we pass a village in which the planters and workmen live.

The Philippine Islands are famous for their tobacco. Enormous quantities of it are raised and exported. Much of it is sent away in the form of cigars and cigarettes made in Manila. Some of the factories of that city employ thousands of hands, many of whom are women and girls noted for their skill in rolling cigars. In such factories one

may see hundreds of girls sitting on the floor or on stools six inches high, with low tables before them piled high with the dark brown leaves. They work rapidly, and some make hundreds of cigars in a day. Men and boys are employed also.

A large amount of tobacco is consumed in the Philippines, for not only men but also women and sometimes even boys and girls smoke cigars and cigarettes. In the house and out they may be seen puffing away, and often we are invited politely to join in a smoke.

The Cagayan River is navigable for little steamers, and we follow it to its mouth at Aparri. Here we see vessels loading tobacco, and learn that hundreds of thousands of bales are annually shipped from this port. We find one steamer ready to leave in a few hours, and so take passage on it and journey to Manila by way of the west coast of Luzon.



Smoking her big cigar!

XXX. AMONG THE VISAYAN ISLANDS

RETURNING to Manila from northern Luzon, we make a short trip up the Pasig River and in and along the coast of Laguna de Bay. We should like to visit the Mayon (mä-yōn') volcano at the southeastern end of the island, and the Taal (tä-äl') at the southwest, but we

do not have time before our boat is to leave for the south. The Taal volcano rises in a lake partially surrounded by mountains. It is a thousand feet high, and its steaming crater is more than a mile wide. The Mayon volcano is one of the most beautiful mountains of the Philippines; and it equals almost any other mountain of the world in beauty. It is almost a half mile higher than Mount Washington, and ends in a perfect cone, from the top of which rise plumes of feathery vapor that can be seen for miles out at sea.

We leave Manila on a coasting steamer, and pass around the southern end of Luzon on our way to the Visayan Islands, the central group of the Philippine archipelago. Just south of Luzon, we coast the north shore of Mindoro. We do not stop at this island, but there is an American on board who has been there and who tells us something about it. There are savages on Mindoro, he says; who can count only to three. They indicate all sums above three by tying knots in a strip of rattan. The most intelligent of this tribe can count as high as twenty by using their fingers and toes. These people are the Mangyans (*män-gyän'*). They are long-haired and sometimes wear turbans. In some places they go almost naked; in others, the women wear cloth skirts. It is said that the Mangyans still use an alphabet that has come down from their forefathers, writing the letters on banana leaves or strips of bamboo. They send messages from village to village by pounding on the trunks of certain trees, which give forth resounding noises.

Steaming onward from Mindoro, we make our way from port to port through the Visayan Islands. They are of much the same nature as Luzon, composed of mountains and valleys, with rich plains here and there along the coast. The land is everywhere green. The plains are covered

with plantations of rice, sugar, and hemp, and the mountains are so wooded that they look dark blue in the distance. The coasts are bordered with coconut trees, under which are villages of thatched huts, with fishing traps on the beach, and fish inclosures fenced with bamboo extending far out from the shore. We pass quaint boats with outriggers manned by brown-skinned men and boys en-



Native canoes with outriggers.

gaged in catching and trapping the fish for which these waters are noted. Some are gathering *bêche de mer*, and others the pearl shells from the coral islands of the group.

As we go onward, stopping at a new island every few days, we are surprised at the size of the Visayan Islands, and also at their resources and large population. These

islands are more than twice as large as Vermont, and have more than one third of all the people of the Philippines. They have three hundred and fifty towns, ranging from fifteen hundred to twenty-five thousand inhabitants each, and more than thirteen hundred and sixty villages, with a total population of between two and three millions.

Most of the people are on the six larger islands of the group; namely, Panay, Negros, Samar, Leyte, Cebu, and Bohol. These islands are also the richest. They abound in hard wood and in hemp, sugar cane, tobacco, and rice. They raise many kinds of vegetables, and all sorts of tropical fruits. Some of them are rich in iron, copper, and coal, and others have deposits of gold, silver, and lead.

Our first long stop is at Cebu, the capital of Cebu Island, where Magellan made his treaty with the natives when his ships stopped here on their voyage around the world. Our steamer anchors very near the spot where, after his long voyage across the Pacific, he first set foot on Philippine soil.

On shore we visit a little pavilion, in the center of which is a great black cross of wood marking the spot where Magellan celebrated his first mass in his attempt to civilize the natives. The spot is considered sacred by the Filipinos to this day. They throw coins through the bars of the gates of the pavilion, and the brick floor inside is peppered with coppers, or with ten or twenty centavos in silver. Candles are kept burning in front of the cross.

A short distance away from this cross we visit the church of St. Augustine, which contains another relic of Magellan. This is a black wooden image of the infant Jesus, which he brought with him from Spain. Forty years after he was killed, it was found in the hut of a native. It was because this relic was found here that Cebu was made the first Spanish settlement in the Philippine Islands. That was

seventy years before Boston was founded, and forty-two years before Captain John Smith established his little colony at Jamestown. The town was the capital of the islands until Manila was chosen.

How surprised Magellan would be if he could see Cebu as it is to-day, four centuries later! The city has more than doubled its population since the United States took possession of the islands, and is already next to Manila in importance and trade. It is one of the chief hemp centers, and it has a large trade in coconuts and coconut oil. It has well paved sidewalks walled with stores and comfortable houses, and its streets are as smooth as a floor. Au-



A street in Cebu.

tomobiles are dashing over them, and steamers and motor boats are in the harbor where Magellan's sailing vessels landed. We see radio towers rising above the buildings. Railroad trains are coming in and going out. There are telegraph and telephone systems, and the city is lighted by electricity.

Cebu has all kinds of schools, from primary schools to the new normal college. It has a big hospital, factories for making coconut oil, and many other churches besides the one we have just visited. It has some good public buildings, and is preparing to erect a capitol on new land adjoining the city.



Coconuts carried on rafts down the river to the mill.



Splitting open the coconuts to be dried as copra.

We hire a little boat at Cebu and cross over to the tiny island of Mactan (măc-tăn'), where Magellan was killed. See that launch starting out over there! That is a vessel carrying people afflicted with leprosy to the island of Culion (kōō-lē'ōn), which is located between Mindoro and Palawan. Some years ago lepers were allowed to roam over the Philippines, begging food and clothing, but now they are sent to Culion, the whole island having been turned into a leper colony. There they are given treatment and kept by themselves to prevent the disease from spreading among well persons.

The strait between Cebu and Mactan is so narrow that we cross over in only ten minutes. Our boat has sails, and a great bamboo outrigger lying on each side in the water to keep it from turning over. We take an automobile to the place where Magellan was killed by the natives. Here a white stone shaft has been set up to mark the exact spot.

Before returning to Cebu, we visit also one of the biggest coconut mills in the Far East. It covers more than seven acres and is surrounded by comfortable little houses for its workers. The copra, or dried coconut meat, comes here by the shiploads from all the neighboring islands, and this mill turns it into coconut oils, glycerine, and soap. The cake left after the oil is squeezed out is used for feeding chickens, cattle, and hogs.

Another interesting industry that is carried on in the low islands about Cebu is the evaporation of salt from sea water. We visit acres of salt beds along the shore of Cebu just opposite Mactan. They are paved with red bricks and divided into little square vats, into which the sea water is allowed to run. The tropical sun soon dries up the water, leaving the salt on the bricks. Barefooted women then gather it into baskets and dry it for sale.

From Cebu our little steamer carries us on south to Dumaguete (dōō-mä-gā'tā), at the southern end of the island of Negros. From here we can see the big round island of Bohol, to the east, and if it were a clear day we could spy the northern shores of Mindanao. This is a volcanic region. Just opposite is Siquijor (sē'kê-hōr') Island, which was thrown up from the sea not many decades ago. Behind us are high mountains, one of which was recently in eruption. Not far from Dumaguete is another crater pouring forth smoke and gases, and there are hot mineral springs in the neighborhood.

Dumaguete is a thriving little city of twenty-five thousand people. It has good roads, fine schools, and excellent shops, owned mostly by the Chinese. We visit an old watch tower built many years ago to guard against Moro pirates, and we pay a visit to Sill'iman Institute, a private school founded here by an American.

Negros is the chief sugar island of the Philippines, and there are plantations a little distance from Dumaguete. Sugar now represents about one third of the value of all the exports from the Philippines, and most of it comes from Negros.

We go around the southern end of Negros, and then steam north to Iloilo (ē'lō-ē'lō), on the south coast of Panay. The ground about the town is low and sandy, but there are mountains behind it. There are coconut trees on the edge of the city, and we hear the wind rustling through their green leaves as we ride to the shore in a small boat.

There is not much of interest in Iloilo, so we spend our time on shore by taking excursions out into the country, either in automobiles or in carts hauled by cattle with humps on their backs. They look like the sacred cattle of India, and are used for plowing and all sorts of work.

Outside the cities, the Visayans live much the same as do the farmers of Luzon. They are huddled together in villages, and their houses are, if anything, more crude than those farther north. They are usually built well up from the ground, so that we have to climb to the front door on a ladder of bamboo poles. The ladders have rungs about as big around as one's arm, and we sit on them now and then as we chat with the people.

Out in the country the natives wear even less clothing than those in the north. Other things are equally primitive. See that woman in the field over there with a log on her shoulder. She is bringing a drink to her husband. That log is her water bucket, a bamboo tube six inches thick and twice as long as herself, with all the little



Woman carrying a bamboo water bucket.

inner partitions at the joints, except the one at the lower end, knocked out so that it will hold a few quarts of water.

XXXI. MINDANAO AND THE MOROS

NOW we are in Zamboanga (säm-bō-än'gä), on the great island of Mindanao, near the southern end of the Philippine archipelago. We are only about three hundred miles from the Equator; but the climate is by no means unpleasant, for the fresh air from the sea fans our faces, whispering a welcome as it sweeps through the palms overhead.

Zamboanga is more than ten times as large as it was when the United States first took possession of the Philippine Islands. It is now one of the most beautiful little cities of the tropics. The town is in the midst of a coconut forest, the lowlands above and below it are covered with palms, and tall banana plants rustle their leaves about us as we walk through the well-kept streets. Many of the houses are hidden in flowers. The grounds of the military post form a beautiful park, and a canal with water like crystal runs through the city. There are several plazas with fountains and plants and shrubs.

The water for Zamboanga comes from high up on the slopes of the mountains, where there is a swimming pool fed by a mountain torrent that foams and splashes as it dashes down over the rocks. The swimming pool is bordered with ferns, and in the center is a raft from which we take turns diving into the water. The water that comes down from the pool runs a hydro-electric plant that generates electricity to light the city.

Mindanao is by far the most important of the islands in the southern part of the Philippines. It is larger than

Indiana, and is one of the richest islands on earth. Its soil will produce anything found in the northern parts of the archipelago, and it raises hemp, sugar, tobacco, and rice. It produces all sorts of tropical fruits, and also pepper, cloves, nutmegs, and cinnamon. There are coffee fields within a mile of where we are sitting, and countless coconut trees grow on the lowlands of the coast. They are very



A government building in Zamboanga.

tall, and some bear so many nuts that a single tree could furnish one for every day of the year.

Mindanao is thought to be rich in coal, copper, iron, and gold. Its forests include teak, ebony, and Philippine mahogany, and its pasture lands support herds of horses, cattle, and carabaos. The island is mountainous, three great volcanic ranges crossing it from north to south. The middle range is the highest, and contains Mount Apo (ä'pō),

an active volcano. The largest river of the archipelago is in Mindanao, and in addition there are two hundred other rivers, as well as numerous lakes.

We spend some time in Zamboanga, and also make trips into the country. In the forests we see monkeys of many kinds, some of great size and others not much bigger than your two fists. There are almost as many kinds of parrots as in Australia or New Guinea. We often see flocks of white parrots with tufts on their heads, parrots of bright red with green wings, and other birds noted for their whistling and singing.

Mindanao has doves that have golden brown bodies and green wings, great white snipes, and strange birds as big as turkeys and of the same shape. It has white herons and wild pigeons three times as big as our pigeons at home. In the woods there are also wild hogs and deer of various kinds.

So far, the Filipinos among whom we have traveled have been either Christians or pagans. The people we see about Zamboanga are Moham'medan Moros. They believe in a religion founded by Mohammed, who was born in Arabia 570 years after Christ. This man claimed to have revelations from God, which were collected into a book called the Koran. He had many followers, who spread his religion, until a large part of the human race came to adopt it. There are millions of Mohammedans in Asia and Africa, and also in the islands of Malaysia, especially Borneo.

The Moros live along the western and southern coasts of Mindanao and in the Sulu Archipelago to the southwest. They were here when Magellan discovered the islands, and were so fierce that the Spaniards were not able to conquer them, or to keep them in complete subjection. For a long time they were noted as pirates. They had fleets of war vessels in which they sailed from Mindanao and Sulu to

different parts of the Philippines, robbing the villages and killing the people, or carrying them back home as slaves.

The Moros have their own towns and villages. They are largely fishermen, but they also do some farming in a crude way. They are divided into tribes, each under its independent chief, who is called a *datto* (dät'tō), and they have also several sultans to whom they owe a certain kind of allegiance. The dattos once had the absolute power of life and death over their subjects, and until the Americans came, they could, if they wished, order any one to be killed. The American officials still allow the Moros to be ruled by the dattos; but most of these people are now peaceful and are made to obey



The front steps of a Moro house.

the laws as the other Filipinos do. The children go to school, the teachers also being Mohammedans.

During our trips out from Zamboanga we visit the capital of one of the dattos of southern Mindanao. How different it is from our cities at home! All about us along the coast and back of it are hundreds of yellow and gray thatched huts, each fifteen or twenty feet square, built high upon poles under the tallest of coconut trees. The floor of each

hut is about six feet from the ground, and is reached by a ladder, made of a log with notches cut in it for steps. Some of the huts are quite large, and some have little verandas in front of them. Let us look into one. It has but one room. The floor is of bamboo poles covered with mats. There are no chairs or beds, and the people sit and sleep on these mats.



Moro policeman.

The Moros are as strange as their houses. All about us are scores of barefooted, brown-faced men, brown-skinned, half-naked boys, and naked babies. The men wear turbans of bright colors, loose jackets, and skin-tight trousers in stripes of red, yellow, and blue. Some have straw hats over their turbans, ending at the crown in a tin cone. Every man or boy wears a great *kris* or sword at his belt.

Notice the red lips and black teeth of the people. They all chew the betel nut, seeming to think black teeth prettier than white ones. Look at that woman laughing over there! Her teeth are jet black and curve out at

the front. They have been filed down with a stone, and she considers the curve very beautiful. All these women have their teeth filed in that way. The filing was done when they were grown up and ready for marriage. The

operation is so painful that the girls often faint when it is done, but it is the fashion, and all the Moro girls want their teeth filed.

Strolling down the chief street of the village, we come to a house much larger than the others. This is the residence of the datto. He receives us kindly, offering us cigarettes to smoke and betel to chew ; but we refuse, thanking him politely for his courtesy. The datto is dressed in a red silk turban, a black satin jacket, silk trousers, and a gorgeous green sash. His clothes are fastened with buttons of gold, and he wears a kris two feet long. He tells us he is glad the Americans have taken possession of the country, and that he is proud to be an American citizen.

In the interior of Mindanao, the tribes are chiefly pagan. The savages of Bukidnon (bōō-kēd-nōn') live largely in trees, to be out of the way of their enemies. They are exceedingly timid. The Mandayas (män-dä'yä), who dwell at the head-waters of the Agusan River, still use bows and arrows. They carry shields and have curved fighting knives which their blacksmiths hammer out on rude anvils. In the past they were great fighters and slave traders, and a man was allowed to wear a red coat when he had killed a half dozen people.

The Manobos (män-ō'bōs) are a pagan tribe who live along the Gulf of Davao (dä-vä'ō). They have now been gathered into villages along the river banks. Schools have been established, and they are improving in civilization. They are an intelligent people, fond of music and dancing, but very superstitious. They are especially skilled in weaving and in the working of metals.

We leave Zamboanga for a trip around the south coast of Mindanao, stopping here and there at various ports until at last we reach Davao, a town at the head of Davao

Bay, in the southeastern end of the island. The mountains have been in sight all the way, and now as we steam up Davao Bay we see Mount Apo, about whose sides clouds of vapor are rolling. At night the clouds are rosy with fire.

Davao has eight or ten thousand people, including many Chinese and Japanese. The town is like a botanical garden. Thousands of tall palms wave their fan-like leaves in the air above rows of thatched cottages built along wide, level streets. Some of the palms have clusters of coconuts hanging on them, and others are loaded with the round green and yellow nuts of the betel. There are banana groves here and there, and patches of nipa, with their great fernlike bunches of leaves, each fifteen feet long and a yard wide, sprouting up from the ground. There are flowers of strange shapes and colors, and orchids hang here and there upon the dead branches of trees.

Davao is in the chief hemp-raising region of the Philippines, and on the plantations near by we can see how this important product is raised and prepared for the markets.

Do you know what hemp is? Every one of us has used it again and again. We have handled it as string and played with it as jumping rope. Some of our farmers bind their grain with it, sailors use it in the ropes that pull up and let down their sails, and our clothes are hung to dry on clotheslines made of it. Some varieties are sent to Paris where they are made into hats, nets, tapestry, and carpets. Here in the Philippines it is used to make baskets, hats, slippers, and cloth, and the waste is manufactured into wrapping paper.

Hemp comes from the fibers of certain plants found in various parts of the world. Much of our binder twine is made of the sisal hemp that grows in Mexico. Manila hemp, or *abacá*, as it is called here, is the best and strongest

in the world. The plant grows in most of the islands. We have seen hemp spread out to dry in the streets of the towns, and out in the country we have often passed men taking loads of the fiber to market, sometimes in bullock carts and sometimes on their own backs. In Luzon we found a province where hemp is the chief crop, and the whole island of Leyte in the Visayans is full of hemp plantations.

We spend one morning going through one of the biggest hemp estates in Mindanao. We must keep close to our guide, for the plantation is so large that otherwise we might become lost and spend days trying to find our way out. There are thousands upon thousands of the plants, making a forest in which there are neither roads nor paths. Now and then we come upon a coconut tree, but mostly there is nothing but hemp, hemp, hemp.

Hemp is the fiber of the same plant family that produces the banana. The hemp plant looks just like a banana plant, being composed of many wide leaves wrapped round and round a central stalk, which, when full grown, reaches a height of fifteen feet or more. The outer leaves are of a beautiful green; they are about a foot wide and often ten feet in length. As they grow, they branch out from the stalk, shading the ground. The hemp comes from the white inner leaves, which are wound tightly around the central stem, there being so many that the plant at its base is often ten inches thick.

Here and there is an open place where a stalk has been cut; but sprouts are growing about the stump, and we are told that a plantation, once started, reproduces itself many times. In forming new fields, the sprouts from the older plants are pulled off and planted. At the same time that the shoots are set out, sweet potatoes, cow peas, or other crops are planted also. These soon spread over the ground,

preventing the growth of weeds. When the *abacá* grows up and spreads its own leaves; their shade keeps down the weeds. The plants are ready for cutting three years after the shoots are set out. After that they can be cut every four to six months.

Let us watch the men cutting the hemp. Half-naked laborers chop down the plants with their sharp knives and



Stripping hemp to obtain the fibers.

tear them apart. They throw away the green outer leaves and carry the long white inner ones on their shoulders to the strippers. A stripper squeezes out the pulp and juice by drawing the hemp over a huge block of wood upon which a dull knife is so hinged that it can be forced tightly down upon the leaf to press the pulp out as the man pulls it

through. As the fiber comes out it is wrapped about a stick to keep it from breaking and from cutting into the worker's hands. When finished it looks like a skein of silk. It now needs only to be dried in the sun to be ready for market.

Most of the hemp from Davao goes to Manila, where it is sorted into different grades before it is shipped abroad.



Hemp hung up to be dried.

The three chief buyers of it are the United States, England, and Japan. Manila hemp fiber was once the principal export from the Philippines, but sugar and coconut products now bring in more money.

Not far from the town of Davao we see something of the native tribe known as the Bagobos (bä-gō'bōs). They live

along the eastern and southern slopes of Mt. Apo, and are the finest looking natives we have yet seen on the islands. They are taller and better formed than the people of the Visayans, and they look more intelligent than the Moros. They have bright yellow skins and luxuriant black hair, which they wrap up under their turbans. The hair seems



A Bagobo man.

to be pulled out of their faces, although one or two of those we see have beards. They file their teeth so that they look like a saw, and blacken them by chewing the betel.

The most striking ornament of the Bagobo is his earrings. In many cases these are so large that they hide the whole ear. We see some made of ivory that are as big around as a cup. The poorer men have earrings of wood. The women wear wooden ear

plugs inlaid with silver and brass and connected by a beaded band that goes under the chin. We see one Bagobo man, who perhaps had forgotten his earring, who has thrust a large cigar through his ear lobe!

What curious garments these people wear! The men have beautifully woven jackets and short trousers of grass cloth dyed red and white and embroidered with beads.

Their jackets do not reach to the waist, their sleeves stop at the elbow, and their trousers end at the middle of the thigh. Most of them wear bead bracelets, and nearly all have bands of beads around their legs between the calf and the knee. They carry knapsacks of grass cloth embroidered with beads of many colors and bordered with tassels and beads. The women load their arms with ornaments of brass and shell, and have rattles and bells attached to their ankles.

Villages have now been established for the Bagobos in the region about Davao, and there are government schools with regular teachers.

XXXII. THE SULU ARCHIPELAGO

WE have left Davao and come back to Zamboanga, where we took a launch for the island of Basilan (bä-sē'län), which lies about twenty miles to the south. Basilan is the northernmost island of the Sulu Archipelago, the last division of the Philippines we shall visit. The archipelago lies between the Sulu and Celebes seas, and stretches from Mindanao to the edge of Borneo. It consists of more than four hundred islands, but they are so small that almost all of them could be crowded into the state of Rhode Island. The larger islands are volcanic and high, and the smaller ones mere coral beds, a few feet above the level of the sea. On some of the islands are valuable forests containing teak, bamboo, and palms; and on some are raised rice, coffee, cacao, corn, hemp, cotton, indigo, and rubber. Pearl fishing is carried on much as it is off the coast of Australia, the shells being shipped to Manila and Singapore.

The island of Basilan is the largest of the Sulu Archipelago, and there are fifty-five smaller islands about it that belong to the Basilan group. The main island contains about a quarter of a million acres. It is rich in timber, and its hills and mountains are forest-clad to their summits. Its population is about thirty thousand, of which perhaps one tenth are Christians. The remainder are Yakans (*yä'käns*), a tribe of people largely employed on the plantations, and Samals (*sä'mäls*), or sea Moros, who live near the coast and engage chiefly in fishing. Before the Spaniards came to the Philippines, the people of Basilan paid tribute to the Sultan of Sulu, and were governed by Sulu dattos. To-day the chief official is a Christian Filipino, and the island is ruled from Manila.

The principal town on Basilan is Isabela (*ē-sä-bā'lä*), where we are now. It is a ragged little settlement of thatched huts, a few frame buildings roofed with galvanized iron, an old Spanish fort that now serves as the town headquarters, and a hospital built on posts over the sea. This hospital is now filled with lepers waiting to be sent to the leper colony of Culion.

Basilan is important chiefly for its rubber plantations. We have here in our southern islands thousands of acres of land that could produce all the rubber needed by the world for all time to come, if it were set out in plantations. The tropical location within five hundred miles of the Equator is just right, and the islands are outside the region of typhoons that might blow down the trees.

The chief rubber islands of the Philippines are Mindanao, Basilan, and Palawan. There is wild rubber of several kinds in Mindanao and Palawan, but the only commercial plantations are on Basilan Island. Tens of thousands of trees are now producing rubber for the markets

of Singapore, from where it is sent to the United States and other parts of the world. To-day the United States gets most of its rubber from Malaysia, but it may be that some day the Philippines will raise all we need.

Let us go for a ride over one of the plantations and see for ourselves just how rubber is grown here. The manager of the plantation has come into the town with his motor truck and will take us out. We shoot out of Isabela over a red dirt road as smooth as a floor, and wind our way through several miles of the plantation. Coconut groves line the road on one side and rubber groves on the other. The trees are laid out in regular order, and in all directions the rows of coconut or rubber extend on and on. The coconut trees are numbered by tens of thousands, and are yielding more than three million coconuts every year. We can see Moros and Yakans walking among the trees with poles thirty or forty feet long. At the end of each pole is a knife, for cutting off the nuts. Other men are gathering the fallen nuts into carts, which great humped bullocks are dragging to the mill where the nuts will be turned into copra.

Now let us look at the rubber forest on the other side of the road. The trunks of the trees have a smooth, silver-gray bark, which is scarred at a point about as high above the ground as your knee. Below the scars on each tree we see a cup fastened by a piece of wire to the trunk in such a way that the milky sap, or *la'tex*, drops into the cup.

We leave the car and our host takes us to one of the trees, where a little long-haired Yakan scars the bark for us with a chisel. As he does so, drops of the sap, as white as milk, flow out and run into the cup. They fall drop by drop, and only about a half cupful runs out in a day. There are ninety thousand trees on this plantation, and most of these

are now yielding rubber. The milk must be collected each day, and men go from tree to tree, lifting off the cups and pouring it into large buckets.

We return to the truck and ride on to the rubber factory. Here the rubber milk is poured into vats lined with white

porcelain. It is left there until a foam rises to the top. This is skimmed off, and then a certain amount of acetic acid is put into the liquid rubber. This curdles the milk until it looks like a block of soft white cheese.



Collecting the latex.

This block of soft rubber is taken out and laid on a porcelain table, where workmen slice it with great knives. Each piece is then fed into rollers of steel, which work much like the rollers of a clothes-wringer. All the moisture is pressed out, and the rubber comes

forth in white sheets about a foot wide and ten or twelve feet long. It goes through roller after roller, becoming thinner and harder at each turn of the wheel until finally it is a long strip of what looks like white or cream-colored cloth. This is known as *crêpe rubber*, and it has only to be dried before it is ready to be packed into boxes and shipped away to the rubber markets of the world.

From Basilan we go on to the island of Sulu, the most important in the archipelago. It is thirty-seven miles

long and about ten miles wide. Its chief town, which is also the capital of the archipelago, is Jolo (hō-lō'). It has wide streets that cross one another at right angles and are shaded by gigantic trees, the limbs of which meet and intertwine overhead, making a series of arbors that protect us from the blazing midday sun. The town has canals running through it, and the main street ends in a pier extending out into the ocean. There are many Americans, Filipinos, and Chinese living in two-story houses with wide balconies over the streets. The people live in the second stories, the lower floors being given up to stores or warehouses. It is cooler upstairs, and the wide balconies, which are roofed over, are pleasant places to sit in the evening. Some of the houses are built out over the sea, so that when the tide rises, half of the lower story is flooded and the household refuse is carried away.



A sheet of crêpe rubber.

An interesting feature of the town is the wall built years ago by the Spaniards to defend themselves from the lances and arrows of the Moro pirates. It is only eight feet high and could easily be battered down by a cannon. There

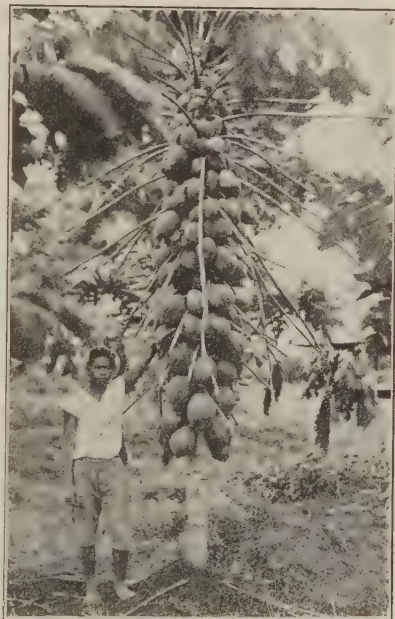
are holes in it just wide enough for a gun to be poked through. For a long time the mortar on the top of the wall was filled with broken bottles to cut the fingers of the pirates when they tried to climb over. To-day the town is the headquarters of the Filipino constabulary, who are the police of the island.

We drive out from Jolo to visit the Sultan of Sulu, who has his residence at Maibun (mī-bōōn') on the south coast, ten miles away. We pass out of the city through a gate in the walls, and roll along over a macadam road. Now we see a carefully tended teak forest, and now we drive past hemp plantations. Here are rice fields in which turbaned Moros are plowing with carabaos. What are those little houses we see in some of the unplowed lands? Those are where the children sit, when the rice is ripe, and pull strings to which bunches of streamers are fastened so that they will sway and frighten away the birds.

Notice the fruit trees all along the way. Some of them tower up fifty feet before they thrust out bunchy branches that look like green haystacks. One of them is the *durian* (dōō'rī-ăn), which bears a fruit as big as a football covered with green spines like the quills of a porcupine. A single durian often weighs eight or ten pounds, and if one should fall on us it might injure us seriously. Our chauffeur stops and brings us one to cut open. At once we hold our handkerchief to our noses. What a disagreeable odor! It is as bad as that of limburger cheese. Inside the durian is a white pulp and one or two dozen seeds, each almost as big as an egg. These seeds are light brown and covered with a half inch of white flesh. It is this flesh that is eaten. After the odor, we hesitate to sample it, but when we pick out the seeds and suck off the pulp, we find it has a sweet, nutty flavor. It tastes somewhat like a banana.

In front of nearly every house we pass we see yellow papayas growing on tall trees. These trees have no branches, and the fruit grows right out of the bark under the leaves. Sometimes there are as many as one hundred and fifty papayas on a single tree. Each fruit is about the size of a squash.

As we go on, we meet children trudging along, bearing on their shoulders bamboo tubes containing water. Here comes a family taking produce to the market. The man wears a bright red turban, a tight shirt buttoned to the neck, and tight purple trousers fastened about his ankles with shining brass buttons. His wife carries a half-naked baby astride her shoulder. She has on a long-sleeved jacket and a baggy divided skirt falling almost to her bare feet. The



Papaya tree and fruit.

older children run along after their parents, carrying vegetables and fruits, laughing and talking as they walk.

Now we have stopped at a market by the roadside. Those people over there are Bajaus (bä-jous'), or sea gypsies, who live in boats. Sometimes as many as eight people will crowd into one boat, doing their cooking and

weaving in that crowded space. The Bajaus say that they become ill if they stay on land more than a few hours at a time. If one of them is ashore and sees a storm coming up, he hurries back to his boat because he feels safer there. A few of the Bajaus live in rude shacks built over the edge of the sea. The roofs of such huts are only about three feet above the floors, so that the people cannot stand erect.



A sea gypsy's hut near Jolo.

What small stocks the market sellers have! One huckster has nothing but five piles of peanuts, all of which will not bring him more than five cents. There are betel-nut stands selling packages at a cent apiece, and corn peddlers offering their piles of tiny ears at a half cent each.

But on the highway not everything is so primitive. As we go on we pass motor trucks filled with passengers and freight going into Jolo, and private cars belonging to Fili-

pínos, Americans, or wealthy Moros. One truck is loaded with Filipino soldiers. We see three or four schoolhouses, which our chauffeur tells us are attended by both Filipinos and Moros.

We make a detour to call on Datto Mam'ma, one of the richest Moros in Sulu. He has seven or eight thousand acres of land, much of which is planted to coconuts, and he tells us that he has a thousand men working for him. We have heard that he has ten wives; we should like to see them, but the old man says they are all at work in his rice fields.

At last we reach the residence of the sultan. It is a huge three-story building with a galvanized roof, and covers about a third of an acre. The sultan himself receives us and shows us about the estate. He is accompanied by only one guard and two of his wives. They are dark-skinned young women with long black hair, big brown eyes, and teeth and gums the color of highly polished jet. Both are chewing betel nuts. The sultan has on riding breeches of khaki, with socks of green silk, instead of leggings. He wears white canvas tennis shoes, and has a green velvet cap on his head.

The Sultan of Sulu was formerly very wealthy and lived in great state. He controlled the pearl fisheries and often gave his guests pearls as gifts. To-day most of his power has been taken from him, and his income is much smaller. He is still revered by the Moros as the head of the Mohammedan religion in the Philippines, but he and his people are now to a large extent subject to the laws made by the Americans and the Christian Filipinos.

1. What island of the Philippines is the largest? What are its chief products?
2. What mountain resort is in Luzon? What native tribes live

in this part of the island? What is the government doing to civilize and help them?

3. Name some of the trees and flowers of the forests. For what is bamboo used?

4. In what part of Luzon are active volcanoes?

5. What group of islands form the middle zone of the Philippines? What are their chief products and minerals?

6. For what historical event is Cebu noted? Why is the city important to-day? How does it compare in size with Manila?

7. Name the two chief cities of Mindanao. What products come from this island? What is hemp?

8. What peoples live in Mindanao? Which are Mohammedans? In what countries of the world are most of the people Mohammedans? (See Carpenter's "Asia" and "Africa.")

9. What is the largest island in the Sulu Archipelago? For what is it noted? What is the most important island? What Mohammedan official lives on it?

10. How is crêpe rubber made? Compare this method of curing rubber with that used in Brazil. (See Carpenter's "South America.")

XXXIII. IN BRITISH BORNEO

BORNEO is so near some of the Sulu Islands that a fast steamer could go from one place to the other in a few hours; but our vessel is small, and the journey from Jolo takes more than a day. The weather is fine and the breeze tempers the hot rays of the sun. We pass many islets covered with green, and here and there we see the American flag floating over them. The water is smooth and so beautifully clear that when the ship stops at an island we lean over the rail and watch the fish swimming far down below us.

At last the mountains of Borneo come into view, a hazy blue line cutting the sky. They grow larger as we come nearer, and we see coconut palms and other dense vegetation

on the shores. There are many fishing villages, built high upon piles like those of the Sulus. We wind in and out along the coast, and at last come to anchor in the beautiful harbor of Sandakan (sǎn-dǎ'kǎn).

Sandakan is the capital of British North Borneo, and is therefore the residence of many English officials and merchants. It has about ten thousand people, of whom perhaps half are Chinese. The others include Malays, Filipinos, Moros, and English. The Chinese and the Malays have their own settlements near the harbor, and behind them is a hill on which the white people have their comfortable little houses. The English own the best stores, and their houses make Sandakan look more like one of the towns of northern Australia than like the Moro settlements we have just left. There is a good hotel, a newspaper, a club, a hospital, and a museum.

The English have brought much of the land near Sandakan under cultivation; and we go out with them to visit their plantations of coffee, tobacco, rubber, coconuts, and hemp. We spend some time with the governor and other officials, learning much about Borneo. The island is the third largest of the world and is more than twice the size of the whole Philippine archipelago.

Borneo is governed by the English and the Dutch. The Dutch own the larger part of it, but the English possessions are better known and more developed. They are in the northern and northwestern parts of the island, and include the states of British North Borneo, Brunei (broo-nī'), and Sarawak (sä-rä'wäk). British North Borneo, where we are now, is a little larger than South Carolina.

Borneo is so large that we can hope to see only a small part of it. Its coast line is as long as the distance from New York to Liverpool; and if we were to sail around it,



we should have to hire a ship of our own, for there are no regular steamers. There are few roads in the interior, and the single railroad, which is in North Borneo, is only one hundred and twenty-seven miles long.

This vast country has mighty plains, numerous rivers, and great mountains. One peak, Mount Kinabalu (kēn-ä-bä'lōō), is almost as high as Pike's Peak. Borneo is extremely wild; much of it has not been explored by civilized man. The mountains and lowlands are covered with jungle and forest, the trees being bound together with rattans and other ropelike vines that make it almost impossible to cut one's way through. Many of the plains are flooded during the rainy season, and the rivers swarm with crocodiles.

The forests are full of fine timber. Coal, iron, gold, and petroleum have been found in many regions. Oil is now one of the chief exports from the island. Besides the products raised on the plantations we have visited, Borneo produces also rice, rubber, camphor, rattan, gums, tapioca, fruits, and spices. *Bêche de mer* is gathered along the coast, and, together with birds' nests and pearls, shipped to Singapore and Hongkong.

Borneo is a land of wild animals, including elephants, rhinoceroses, boars, deer, and bears. It has a great variety of monkeys, some very small and others of enormous size, such as the orang-outang. This animal, when full grown, is about four feet in height; it has long arms and short legs, and is so strong that it often kills men who attack it. The orang-outang lives in trees, swinging from branch to branch by its hands. It rarely comes to the ground, except for food or water.

The island has snakes of the most deadly kind, including great pythons, some of which are thirty or forty feet long.

There are flying lizards of a golden green color, and lizards that climb up the walls of the houses, catching flies. There are gorgeous butterflies, some measuring six inches across



A girl of the Dusun tribe.

the wings, and myriads of beetles of various kinds. The island is a world of natural wonders, as we shall see in our excursions out from the ports.

The natives are the strangest of all. There are many different tribes, the most important being the Dusuns (dōō'-sōons), the Muruts (mōō'rōots), the Bajans (bā'jäns), and the Dyaks (dī'äks). The people along the coast near Sandakan are much like the Moros, and they live in the same way. Those of the interior are more savage than the wildest of our Filipinos, many of them practicing head-hunting, and being by no

means particular whose head they take. They lie in wait for travelers and kill them if they can catch them alone or in small parties, in order to secure their heads as trophies. They dry the heads thus taken and hang them up in their huts. The man who has the largest number of human

heads is thought to be the bravest; indeed, among some tribes a man is not thought of any account until he has captured at least one head. Some of these people believe that the persons whose heads they take will become their slaves in the next world; others believe that a new head hung upon the walls of a hut will bring the family prosperity and make them successful in all undertakings.

The Dyaks of Borneo look not unlike the savage races of our Philippine Islands, although they are lighter in color, taller, and more active. They wear but little clothing, the men of some tribes having only a band of bark or cotton cloth about their loins, and the women



A Dyak boy.

short petticoats of bark or cotton. In other regions both men and women wear jackets. Some of the women wear corsets made of brass or lead rings strung on strips of rattan, which they wind about their waist and the lower parts of their bodies. A woman so dressed looks not unlike a barrel walking off upon legs, with the head and arms sticking out of the top. The brass rings are often highly polished, so that the girls appear dressed in coats of bright mail.

Many of the people, both men and women, wear enormous ear plugs and earrings, some of which are as big around as a napkin ring. The holes in the lobes of their ears are so large that they can carry a cigar in them. How are such holes made, we ask, and we are told that the ear is pierced during babyhood. The hole is small at first, but it is stretched by putting larger and larger plugs in it, so that when the child is grown he has a loop or hole in his ear from one to four inches long.

The Dyaks file and blacken their teeth, sometimes so cutting the edges that they look like saws. They bore holes into the teeth and fit brass pivots in them; they also hollow them out as the Moros do.

In British Borneo many of the Dyaks live in villages, some having small farms. They raise fruit, rice, tobacco, and sugar cane. Both women and men labor in the fields, but the women do most of the work. More often, however, these people are fishers and hunters. They use dogs to help them, spearing the game when the dogs bring it to bay. They shoot poisoned arrows through blowpipes, and catch crocodiles with a sharp wooden stick to which a rattan rope is attached. They bait the stick with a dead monkey. The crocodile swallows the monkey, and the sharp-pointed stick gets crosswise in his throat or stomach, and the harder he pulls, the tighter it is fastened. After a while the crocodile, worn out, is pulled ashore and killed.

The natives of Borneo live differently in different parts of the island. In some tribes each family has its own house, and in others all dwell together in great thatched buildings with many compartments, each compartment belonging to a family. In some villages there are bachelors' flats where the young unmarried men sleep and where travelers are kept over night.



Our route among the East Indies.

The houses are generally high up above the ground on poles, and in some places they are even built in the trees. The buildings are much the same as in the Philippines, the walls and roofs being of the nipa palm, and the framework of poles. Very little iron is used, everything being carefully fitted together, and the walls and roofs tied or sewed on with rattan.

From Sandakan we board a ship for Brunei. The journey along the west coast takes several days. We skirt the shores, seeing everywhere the same rich vegetation and low, jungle-covered plains with great mountains behind them. We pass many Dyaks out fishing in their curious boats. Finally we steam into Brunei, the capital of the territory of the same name. It lies on a little river about fifteen miles upstream. We anchor in the heart of the city among houses built upon piles over the water. Some of the houses are apparently floating. This is the old part of the town, a new section having been built on the mainland.

Brunei has a sultan, but as it is under English protection there are English officials here. Our ship remains but a short time, and then steams on several hundred miles down the coast to Sarawak.

Sarawak has a population of about six hundred thousand Malays, Chinese, Dyaks, and other natives. It is one of the richest of the Borneo states, producing gold, silver, oil, and diamonds, as well as gutta-percha, camphor, beeswax, sago, pepper, and tropical fruits. It became a possession of England in a curious way. In 1839 when the tribes inhabiting it were fighting against one another and their sultan could not control them, a rich Englishman, named Sir James Brooke, who was sailing about these seas in his own vessel, landed and came to the sultan's aid. He took over the management of the government and brought about peace and good order. He did so well that he was made the actual ruler of the country, with the title of Rajah Brooke, and some time after that Sarawak was declared to be under British protection. It is still ruled by the descendants of Sir James Brooke, who govern the island somewhat like an English colony.

Our vessel stops at Kuching (kōō'chǐng), the capital of Sarawak, a city of about twenty thousand people on the Sarawak River twenty-five miles from its mouth. The rajah has been informed of our coming, and we are well taken care of while we stay. He arranges a crocodile hunt for us and also a trip into the interior, where we have exciting adventures with monkeys and bears, and narrowly escape injury in our vain attempt to capture an orang-outang.

Returning to Kuching, we rest there a few days in the comfortable homes of the English residents, and then take ship for Dutch Borneo, landing at Banjarmasin (bän-jer-mä'sĭn), its chief city on the south coast.

XXXIV. THE DUTCH EAST INDIES

TO-DAY we begin our travels through the vast possessions belonging to Holland in this part of the world. They are known as the Dutch East Indies, and include not only the greater part of Borneo and the western half of New Guinea, but almost the whole of the Malay Archipelago. They have a territory fifty-six times as large as Holland itself, and greater than the combined areas of our Atlantic states added to Indiana, Kentucky, Tennessee, Mississippi, Pennsylvania, and North and South Dakota.

Sumatra (sōō-mä'trà) is longer than the distance from New York to Chicago, and Java is longer than the distance from Philadelphia to Cleveland. The Moluccas have almost as much territory as South Carolina, Celebes (sël'ê-bēz) more than Missouri, Java more than New York, Dutch New Guinea more than California, and Dutch Borneo more than any European country except France or Russia.

Most of this vast territory, with the exception of Java and parts of Sumatra, is wild and unexplored. The islands are of about the same character as those parts of New Guinea and Borneo that we have seen. They are inhabited by many savages, there are few roads, and we shall be able to visit only their coasts. Our chief travels will be confined to Java, the most important of all the Dutch islands.

Banjermasin, in Dutch Borneo, where we are now, is built almost entirely upon the water. It lies on a branch of the Barito (bä-rē'tō) River, most of its houses standing upon piles so that the water flows beneath them when the river is high. The Barito is filled with craft of all descriptions, from great barges and steam tugs to little canoes and

bamboo rafts. The city has about forty thousand people, and is a place of considerable trade, products being brought in on the navigable tributaries of the Barito. It lies in the heart of a country rich in gold, diamonds, and coal, and it exports large quantities of timber and coal.

During our stay we call upon the officials. They are Dutchmen who have been sent out from Holland to govern the territory. They say that the people are not unlike those we saw in the north and that they are ruled, as far as possible, through the native chiefs, with the Dutch as advisers. Even the Dutch know little about the interior of the island, much of which is still unexplored by white men.

After a day or so at Banjarmasin our steamer goes on eastward to Celebes, an odd-shaped island larger than any of the Philippines. Our first stop is at Makassar (mă-kăs'ăr) at the southwestern end. It is a thriving port with a good harbor. It has many snow-white buildings, the homes of the Dutch, and a vast number of native bamboo huts shaded by banana and coconut trees. The streets are filled with brown-skinned people, the men wearing about their waists bright-colored cloths that fall almost to their feet, and the women tight skirts and loose jackets of the same stuff. There are many Chinese and Arabs and a few Europeans. The natives remind us of our Filipino cousins, and we are told that many of them are Mohammedans.

We visit the sugar plantations and rice fields near the city, and make a few short trips out into the country, finding the vegetation not unlike that of the parts of Borneo we have just left. Taking ship again, we go around the upper end of the island to Menado (mě-nă'dō) where we visit the coffee plantations. Besides coffee, vast quantities of copra and nutmeg are exported from this town. We then continue our journey east to the Moluccas, where

Magellan's ships, after leaving the Philippines, loaded spices for their long home voyage.

Spices still grow in the Moluccas, and we stop at Amboina (ām-boi'nā), one of these islands, to visit the clove and nutmeg plantations.

Clove trees are of a beautiful green, many of them thirty or forty feet high. Some are covered with green buds and bright red flowers in full bloom. The cloves are the blossoms, which are picked when they are red. They are cured by being smoked over a slow wood fire. This turns them brown or black, and they are then ready for use. They are next packed up in bales and boxes and shipped to all parts of the world to be used in pickles and other such things.



A clove tree.

Nutmegs grow upon trees not unlike our pear trees, but more beautiful. They have bright yellow blossoms and their fruit is shaped somewhat like a pear, although it is more like a peach in color. As it ripens, the pulp, which is very thick, splits open and shows the nutmeg or kernel surrounded by a network of crimson mace. In preparing

the fruit for the market, the pulpy outside is thrown away and the nuts are dried slowly in ovens. The mace is taken off and marketed as one spice, and the kernel itself forms another, the nutmeg of commerce. About a million and a half pounds of nutmegs and several hundred thousand pounds of mace are exported from the East Indies every year.

The nutmeg tree has its first fruit when it is ten years old, and after this it continues to bear a long time. A good tree annually produces about three pounds of nutmegs and one pound of mace. Raising nutmegs is carried on in the different islands of the Malay Archipelago.

The Moluccas are not far from the western end of New Guinea, and we find here not only Malayan and Indonesian people, but also many frizzly haired, dark-skinned Papuans. We are getting outside the region of the Malays, and if we should sail directly south from where we are now, we should strike the coast of northern Australia not far from Port Darwin, which we visited on our trip round that continent. For this reason, the Moluccas have many things in common with both New Guinea and Australia. They have pouch-bearing animals, cassowaries, parrots of many colors, birds of paradise, and kingfishers, one variety of which has a bright red bill and brilliant blue feathers.

Leaving the Moluccas, we turn again to the west. We enter the channel between Wetter Island and the island of Timor (*tê-môr'*), and sail along the coast of the latter, examining the shores through our field glasses. Timor is about three times as large as Porto Rico, about equally divided between the Portuguese and the Dutch. It is a volcanic island, as we can see from the ragged, rough mountains. The captain tells us that the natives are almost all savages, and that it does not pay him to stop there to trade.

A little farther westward we pass Flores (flō'rēs), another volcanic island. Our steamer does not stop here either, for most of the trading is done in native sailing vessels. The chief exports are birds' nests, tortoise shell, wax, sandalwood, and cinnamon.

Still farther west we coast Sumbawa (sööm-bä'wä) which is noted for its volcanoes. The name Sumbawa means "land of fire," and this island seems well named, for we can see the steam rising in great clouds from some of its peaks. The crater of Mount Tambora (täm'bō-rä) is more than seven miles wide, and so large that a good-sized city might be dropped into it without touching the edges. The crater was caused by an eruption in 1815, when the whole top of the mountain, a mass higher and thicker than Mount Washington, was blown into the air. Before that time Tambora was thirteen thousand feet high. This eruption tore off about eight thousand feet, making so great an explosion that it was heard in Sumatra, a thousand miles away.

Our captain tells us that when the eruption of Tambora occurred, the ocean for miles about was covered with floating timber. Ashes so coated the water that ships could hardly make their way through, and they so filled the air that it was pitch dark in the daytime for hours after the explosion. At the same time the whirlwinds lashed the sea to a foam; they tore up the largest trees by the roots and carried men, horses, and cattle for miles through the air. A town lying at the foot of Tambora was swallowed up, for the shore sank and the sea came in and covered the earth to a depth of eight feet, and there it is to this day. Notwithstanding this, there are still people living on Sumbawa. It has towns and villages, and the natives work away as though there were no danger of another eruption.

As we sail farther westward, we pass Lombok (löm-böck')



Evaporating salt in Madura.

and Bali (bă'lē), other volcanic islands more thickly populated. Thence we go on by Madura (mä-dōō'ră), an island where great quantities of salt are evaporated from sea water, and then along the north coast of Java, with volcanoes in sight all the way, until at last we come to Tanjong Priok (tăn'jōng prē-ōk'), the port for Batavia (bă-tă'vĩ-ă), the capital of the Dutch East Indies.

XXXV. BATAVIA AND BUITENZORG

WE first set foot on Javanese (jä-vă-nēz') soil at Tanjong Priok. Here we take a train and ride for a half hour through the rice fields to the capital of Java. Now we have left the train and are walking along the wide canal that runs through the principal street of Batavia. On

each side of us quaint houses, with white walls and overhanging roofs of red tiles, mirror themselves in the water. The buildings are like those we have seen in Dutch pictures, and were it not for the palm trees, the orchids, the groves of bananas, and the little brown natives everywhere, we might imagine ourselves in one of the cities of Holland.

This is the oldest section of Batavia, where the business district is, and where the homes are mostly those of natives and Chinese. The Dutch officials and the other Europeans

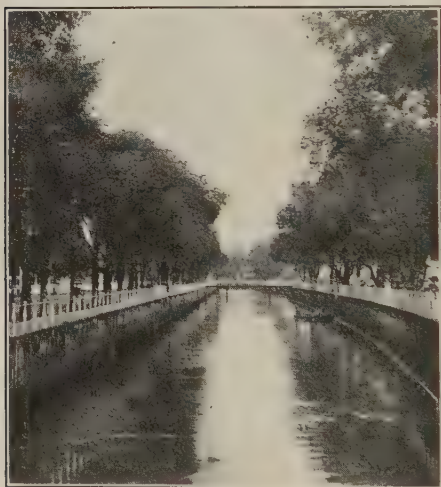


live in the newer part of the capital, which is called Weltevreden (wĕl'te-vrā-den). It is four miles from old Batavia, and we reach it in motor-cars. We drive slowly, so that we have good views of the city as we proceed. The road follows the canal, and we see many brown-skinned boys and girls bathing or washing their clothes in the water. We pass stores owned by Chinese merchants, then pass better buildings, and at last reach the end of our ride.

Weltevreden is a pretty place. The houses are low, white structures painted to represent marble, each having a great veranda upheld by Grecian columns. There are

people sitting on the verandas. The front doors are open, and we can see that the rooms are wide, airy, and comfortably furnished. Nearly every house has a garden about it. Here a drive is lined with royal palms, and there one is shaded by trees so gigantic and beautiful that we shall

not see their like outside of Java.



A canal in Weltevreden.

Here is the hotel where we are to stay. It is a vast structure in the shape of an L, with banyan trees and palm trees in its court, and is surrounded by acres of beautiful gardens. We pass the Royal Museum and its bronze elephant given to Java by the King of Siam, and drive on

through the parks for which the city is noted. There are band concerts here at night, and we shall find many other forms of entertainment. As we go, we see that the city has electric lights, telephones, street cars, automobiles and trucks, and moving picture houses. There is a boy crying newspapers. That building farther on is a college. The stores have all sorts of goods such as are kept in our stores at home. Most of the clerks can speak English or German, and we have no trouble in supplying our wants.

Life is delightful at our hotel. A turbaned boy brings

us coffee as soon as we awake, and later we have breakfast. The first heavy meal of the day is luncheon. What a host of things there are to eat ! We do not feel able even to sample everything. First of all, there is rice. Another waiter brings curry ; another, a pyramid of sausages and gravy. Next comes broiled chicken and green peppers, followed by fried eggs, hashed beef, fried bananas, and fried fish. Our plates are already filled to overflowing, but there is still much to follow. We are offered olives, pickled eggs stuffed with peppers, stewed beef, raw cucumbers, and one or two other dishes the names of which we do not know. We see that our neighbors take some of each dish and then mix the whole with rice. After this, there is still another course of bananas, cheese, and coffee. We think it is no wonder that after such a meal all the people of Weltevreden take a three-hour nap ! We are told that even more courses are served at the ceremonial feasts held by the natives.

From Batavia, we motor out to Buitenzorg (boi'těn-zörk), where the governor general lives. We are received at the palace and are shown through its grounds, which include a botanical garden said to be the finest in the whole world. The governor general lives in great state, and he often has soldiers with him when he goes about the country.

The Dutch manage Java largely through the natives. The chief officials, including the governor general, who rules all the Dutch islands of this part of the world, are Dutch appointed by the Queen of Holland. The smaller offices are held by natives, who have Dutch officials, whom they call their elder brothers, to advise them and tell them just what they must do. Java is divided into states called residences, each of which has a native governor, with one of these elder brothers to direct him. The elder brother will not permit the natives to be ill treated, and at the same



A native ceremonial feast includes fruits, meats, rice, and other vegetables.



Palace of the Governor-General of the Dutch East Indies

time he sees that they pay the taxes necessary for the support of the government. There are many native under-officials who also are helped by clerks from Holland, so that in reality the whole country is managed by the Hollanders, although the natives apparently do the governing. The officials are advised also by the colonial house of representatives at Batavia, which is composed of Europeans, natives, and Chinese. There is a Javanese army composed of natives and soldiers from Holland. It provides for every branch of warfare, including aviation.

Java is the most valuable of Holland's possessions in the East Indies. The Dutch have governed it since the beginning of the seventeenth century, and under them it has become one of the most prosperous countries in the world. It does a large volume of business. Batavia is one of the principal ports, Surabaya (sōō'rā-bā'yā) in eastern Java is another, and there are smaller cities on the north and

south coasts. There are railways to all parts of the island, and more than ten thousand miles of fine roads, so that we can go almost anywhere by train and motor-car. In all parts of the island we shall find telephones, telegraphs, radio stations, and good schools. Some of the schools use the Javanese language, others the Dutch, and in many English is taught.

Java is thickly populated. It is only a little larger than Luzon, but it has nearly thirty million people. These are Malaysians, with the exception of a few thousand Dutch and several hundred thousand Chinese who have come here to trade.

XXXVI. ACROSS JAVA TO SURABAYA

LEAVING Buitenzorg, we cross Java by railroad, stopping in the various provinces, visiting the cities, and taking long trips by motor or on horseback from place to place through the country. Now we are entertained at one of the large plantations owned by the Dutch, and now we stop at a native village and study the people as they live in their homes.

We see mountains nearly all the time. The lower slopes are terraced with rice fields, and above them pines and other trees extend on and on until lost in the clouds. Now we cross plains upon which water buffaloes and fat cattle are feeding. Presently we shoot past groves of coconut trees and wind about through banana plantations. How the engine puffs and snorts as it drags us up the rice terraces! In places the fields are flooded, and the trees that border them are doubled by their reflections in the water. We pass hundreds of villages, go by tea and coffee plantations, climb up through forests of quinine trees, and after a few hours



We pass through native villages on the steep sides of mountains.

make our first stop at the town of Bandung (băn'dống), high up in the mountains. Most of the Europeans of Batavia come here during the hottest weather in the capital.

Going on, we pass through scenes much like those of the Philippines. The people, too, are in some respects the same. There are few houses on the farms, the natives living in villages shaded with palms and other great trees. They labor in gangs and walk long distances to their work in the fields. They are usually paid a share of the crops they cultivate, although some have small farms of their own.

The native houses are often made of woven bamboo thatched with palm leaves. The walls are just like basket work. They can be taken from one place to another, and we sometimes see a wall of this kind apparently moving along upon legs, the man carrying it being almost concealed. The walls are tied to a framework of poles, and the floor often is made of bamboo. The people sleep on low beds or upon the floor. They cook on little stoves of clay so small that they can be moved easily from place to place. Many huts have pigeon cotes on poles beside them, and pigeons are seen everywhere.

The richer natives and the nobles have larger houses, some living in buildings of stone or brick like those of the Dutch. The masses, however, are exceedingly poor; but as long as they have enough to eat they are content.

How queerly the poorer people dress! The ordinary costume of a woman is a *sarong* (să'rống), a long strip of bright-colored cotton, which is bound tightly about the body under the arms, reaching to the feet and leaving the shoulders bare. Sometimes a jacket is worn also. Few of the country women wear shoes, and many of them go bareheaded.

The Javanese man has a waistcloth much like the

woman's, although he tucks it between his legs and into the belt at the back. He frequently wears a jacket, and on his head a turban not unlike those of our Moros.

How small the people are! The men are not much more than five feet tall, and the women still shorter. They are plump and well formed, with slender limbs, small wrists and ankles, and long, slender fingers. The people have yellow or light brown skins, high cheek bones, and eyes a trifle aslant. Their lips are thicker than ours, but not so thick as those of the Negro.

We learn that the natives are divided into three great races, according to the parts of Java from which they come. In western Java are the Sudanese (sōō'-dā-nēz), in middle Java and in a large part of the east the Javanese proper, and in eastern Java the Madurese (mā-du-rēz'), who also inhabit the island of Madura. Each of these peoples has its own language, although they all are somewhat similar.



Javanese woman wearing a batik sarong.

Most of the natives are Mohammedans. They are not very strict in the observance of their religion, although every town has its priests and there are large mosques in some of the cities. In the distant past Java had many Hindus, who worshiped the same gods that are now worshiped in Hindustan'. They built great temples, as did also the Buddhists (bōōd'ists), another religious sect that was once strong in Java.

Now and then we stop to visit the markets. They are found in all the cities and villages, and are interesting places. They are made up of hundreds of little stores or bazaars under one roof. In some of the towns they are held in vast sheds, roofed with thin brick tiles, green with the moss of old age.

We spend some time in the markets of Jokyakarta (jōk'yä-kär'tä), or Jokya, as it is called here, wandering about through many acres of little stores of all kinds. Each store is a platform on which the merchant, usually a woman, sits surrounded by goods. One part of the market is devoted to fruits and vegetables, another to chickens and eggs. Other parts have only dry goods and notions, still others sell hardware and jewelry. In short, everything used by the natives can be purchased here.

At the fowl market we see hundreds of pigeons of all colors, each selling for an amount equal to about two of our cents. The women dealers have little wooden whistles to be tied to the tail feathers of the birds. The whistle makes a shrill noise as the pigeon flies through the air, and thus scares off the hawks.

We visit butcher shops where women are selling meats, and drug stores where they offer us roots and leaves for all sorts of ailments. We stop at the tailor shops, where men and women sit on the floor, working away on little hand

sewing machines. Here is a girl making a silk jacket. She sits cross-legged on the floor, holding her machine between her bare toes as she works.

Let us move on to the fruit stands. Do you like pine-apples? Here is a girl with some fresh from the field. They are twice as big as the ones we see at home, and so ripe that their odor fills the air. We buy one for a coin worth two of our cents, and eat it while we chat through the interpreter with the women merchants. They see we are strangers, and they bring up one fruit after another, asking us to taste it. We sample all sorts of bananas and oranges, eat a slice apiece of the papaya, and rejoice in the delicious mangosteens. We are offered a durian, like those we saw on the island of Sulu, but remembering its odor, we politely decline it.

In one of the shops of Jokya we see native craftsmen making crises, the swordlike knives worn by the nobles. They are also hammering out designs on copper and silver betel nut and tobacco-boxes, bowls, and belt-clasps. Heavy combs and earrings of gold incrustated with gems are being made for the richest people. In another place we see men and women printing *batik* (bâ-têk') cloth. This is colored in bright designs, the patterns being made on the cloth with wax. Every Javanese who can afford it wears clothes of this material.

This city is the residence of the Sultan of Jokyakarta, who, under the advice of the Dutch officials, rules over two million people. He lives in great state; just opposite the market he has a whole city of his own, surrounded by walls. In this inclosure he has his palaces and the homes of the people of his court, stables of many fine horses, a menagerie of tigers, lions, and other wild animals, as well as the state elephants that march in his royal processions.

The nobles of Jokya wear a curious dress, consisting chiefly of a tall cap and a costly sarong. When they come into the presence of the sultan, they must wear nothing above the waist and must leave their swords and other



A native official and his servant.

arms outside. When His Highness walks out, a great golden umbrella is held above him to shield him from the sun, and his nobles follow him, bearing other umbrellas, forming all together a gorgeous procession guarded by soldiers with long bayonets. At such times the common people squat down and hold up their hands, for no native must stand before the sultan or be on the same level with him. The Dutch Resident has

the same standing as the sultan. He sits beside him on public occasions and his chair is on the same level.

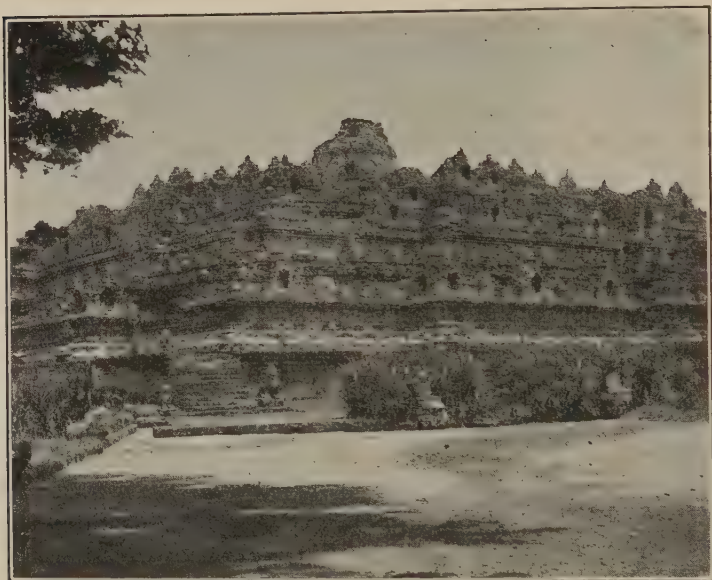
It is the same with the Sultan of Surakarta (sōōrā-kār'tā), another province of Java, not far away. In these two provinces the people live much as they did when the Dutch first took possession of the island. We find this sultan also greatly revered by his people.

At Surakarta we listen to a native band and watch a performance of native actors. The musicians wear high sugarloaf caps, navy-blue jackets, and sarongs of peculiar patterns. They sit cross-legged on mats. Some have barrel-like drums on their knees, and others have gongs and chimes upon which they are playing. One of the gongs is as big as a bushel basket and gives forth a sound like that of a bass drum.

The actors at the theater wear queer masks with long, pointed noses, and silently act out stories recited by a reader. From the form of a mask the people can tell whether the actor is taking the part of an angel, a devil, a prince, or a mere man. In another theater the places of the actors are taken by puppets of bright-colored leather, whose shadows are thrown on a screen. They remind us somewhat of a Punch and Judy show.

Not far from Jogyakarta, we visit the ruins of Borobodor (bō-rō'bō dōr), which is the greatest Buddhist temple in the world. It is a vast monument shaped like a pyramid and as tall as a church steeple. At its base it covers about ten acres of ground, and it rises in terraces, one above the other, each decorated with statues and wonderful carvings. It has more than three miles of carved figures, some no larger than your finger, and some several feet in height. It has about five hundred statues of Buddha (bōō'dā), and in the country about it there are other statues and wonderful ruins.

We are in sight of volcanoes all the way across Java, and before ending our railway journey we decide to visit the Teng'ger, the greatest volcano of them all. Our starting point for the trip is the town of Tosari (tō-sä'rē), a famous health resort of Java, where we spend a few days in pretty bungalows. We start for the Tengger early in the morning,



The great ruined temple of Borobodor.

riding little Javanese ponies, and taking several guides with us to care for the ponies and carry our lunch.

The Tengger volcano is older than the records of history. Its crater is so large that other volcanoes have burst forth in it, and one crater, the Bro'mo, is still active. The floor of the Tengger itself is covered with a sea of sand. As we make our way over it we tie our handkerchiefs over our mouths to keep out the brimstone fumes coming up from the Bromo. The crater is boiling and seething, and reminds us of Kilauea in Hawaii.

After traveling almost the whole length of the island, we come at last to Surabaya. This city is the chief distributing point for merchandise for the eastern islands of the

Dutch East Indies. It is only twenty hours by boat from Banjermasin in Dutch Borneo, about the same distance from the main harbors of Bali and Lombok, and but thirty-six hours from Macassar, on the island of Celebes. Surabaya has a large population, with thousands of Europeans.



One crater, the Bromo, is still active.

The streets of Surabaya are wide and shaded with magnificent trees. They are well lighted and paved with asphalt. In the residential district every house has a big lawn, with palm trees and flowers. Some of the houses are enormous. They are of one story, but the rooms are large and the ceilings are high. Most of them have verandas roofed with red tiles, upheld by white marble pillars.

Besides the section where the Europeans live, there is a Chinese settlement equal in size to a small city, and an Arab quarter containing more than two thousand people. There are also separate settlements of Malays, Sudanese, Madurese, and Javanese.

XXXVII. JAVANESE FARMS AND PLANTATIONS

ON our way back to Batavia from Surabaya we make many stops to visit the plantations and farms of Java, and to learn something about the chief products of this island. At the wharves of Batavia and Surabaya we saw many of these products being loaded on ships for export. There were sugar, coffee, tea, and tobacco, as well as quinine, rubber, copra, and tin. Java raises also rice, corn, cacao, and many other food crops. It has a sort of cotton tree that yields kapok, which is used as a stuffing for pillows and mattresses.

The most important crop in Java is rice, for it is the chief food of the people. It grows on every hill and in every valley, and vast irrigation works have been constructed for it, making a large part of Java a network of canals, some as large as rivers and some as small as the tiniest brook. Every house has its rice granary, and everywhere we go we see the people at work in the rice fields, or hulling the grain. Here they are planting rice, wading through the mud, and setting out, one by one, the little stalks that have been raised in the plant beds. The next field may have men harvesting the crop, for rice will grow at almost any time of the year, and the fresh sprouts and ripe grain are to be seen side by side.

At the beginning of the rice harvest the natives have

picnics and feasts. They erect little temples to the goddess of the harvest, and place within them offerings of eggs, fruit, and sugar cane. In many of the fields shelters are built high up on poles for the children or the parents to watch the crop and scare off the birds. Sometimes, as in the Philippines, strings are stretched from these places to different parts of the fields, so that by pulling a string a boy in the shelter can frighten the rice birds a long distance away.

We see many children working in the rice fields. Little girls cut or plant the rice, side by side with their parents. Water buffaloes are used for plowing, and we often see brown boys and girls riding the cowlike beasts.

In the lowlands of central and eastern Java we spend some pleasant days on the great sugar plantations, which



Opening kapok pods.

are usually owned by rich men from Holland. The planters have beautiful homes, and they live like lords on their estates, employing the natives to do the work. They have sugar mills as fine as those of the Hawaiian Islands, and often raise even more sugar per acre. The cane grows luxuriantly, forming a thicket through which it is almost impossible to make our way. The stalks are full of juice



Planting rice in the mud of a flooded field.

and so sweet that we enjoy sucking them whenever we are thirsty, rather than drinking the water, which is often none too clean.

In this same region are tobacco plantations and indigo farms. Tobacco is raised much as at home, except that it is dried in immense sheds put up in the fields. Indigo comes from a plant which looks not unlike our ragweed, but which has a sap filled with coloring matter. The leaves, from which the best indigo comes, are picked off three times a

year and put into great vats of water. In a little while they begin to ferment, and after a time the coloring matter goes out of them into the water. This mixture is then drawn off and boiled in a certain way, so that what is left turns to a paste or powder, which is the indigo of commerce, used to make dyes.

On the slopes of the Tengger Mountains we see many coffee plantations. Java coffee is noted all over the world and brings high prices in our stores. It grows in many parts of the island, but it thrives best on the lower slopes of the mountains. We have seen coffee growing in Hawaii and the Philippines, and we find

the trees here much the same as in other parts of the world. The variety that produces the best Java coffee is the descendant of plants that were originally brought here from Arabia. The trees are not large, and they seldom grow more than fifteen feet high. Their beans are noted for their fine flavor. Of late, however, many of these trees have died out, and the Javanese have been raising another variety that comes from a hardier plant. Its product has not the fine flavor of the Arabian coffee.

We enjoy our rides through the mountains. The roads are good, and the vegetation is so luxuriant that we pass



Water buffaloes, used for plowing.

between walls of green. There are palm trees and banana plants, immense forest trees, teak trees valued for their fine timber, and all sorts of winding vines. Even the dead branches are covered with green. They are clothed with moss and orchids. Such orchids! Here one has wound itself about a branch like a necklace, and farther out are masses of green with blossoms of many hues.

The forests are full of birds of bright colors. We see many monkeys, big and little, jumping from branch to branch and from tree to tree. Some of them hang from the limbs by their long tails; others squat in the forks of the trees, or creep around the trunks, grinning and chattering at us.

We visit rubber plantations where we see the latex being gathered as it was in the Philippines, and in eastern Java we pass many oil wells. We see places where coca leaves, from which cocaine is made, are being gathered by the natives. Farther west, about Badong, we come into a region of quinine plantations.

The drug known as quinine comes from the cinchona (sĭn-kō'nà) tree. It is especially valuable for treating malarial fevers and other diseases, and is used for that purpose all over the world. The cinchona grew originally only in the Andes region of South America, and for many years the quinine of the world came from Bolivia and Peru. It was the product of the wild trees of the forests, the bark being gathered by Indians for white merchants. Then the Dutch government thought the tree might thrive in Java as well, and they sent men to South America for seed, which were planted in nurseries. From this seed came the trees that are now found here. To-day most of the world's quinine comes from Java.

The cinchona trees grow best on the mountain slopes

about three thousand feet above the sea. They are set out close together, but are thinned from year to year as they grow. The bark, root, and branches of the trees taken out are saved for quinine. After ten years the trees are full grown, and at this time the bark is removed. It is dried in the sun and then sent to the factory at Bandung, where it is ground to a dust, and so treated with acids and other preparations that it comes out the flaky powder known as quinine. It is then packed in tins and shipped to the United States and Europe.

The best tea plantations of Java are in the western part of the island not far from Batavia. Instead of being raised in small patches as it is in China and Japan, tea here is grown on large plantations, each of which is a community in itself. The plantations are situated well up in the mountains, under the shadow of extinct volcanoes.

We are interested in watching the tea pickers. Thousands of little brown women dressed in bright colored sarongs are moving about among the green tea bushes. Here they are bending over the plants, and there sitting down and putting the leaves on the great square cloths in which later they will bundle them up and carry them on their heads to the factories.

Here comes a party of pickers with bundles of tea on their heads. We follow them, and at last come to some immense one-story buildings with walls of woven bamboo and roofs of galvanized iron. There are great stone courts about them on which tea leaves are drying in flat baskets. There is tea drying on the stone floors inside the buildings, where are also great machines for rolling the leaves and preparing them for the markets. The leaves must first be wilted or withered. They are then put into rolling machines, and then dried for the market.

XXXVIII. SUMATRA

WE have left Batavia, have passed through the Sunda (sŭn'dà) Strait at the western end of Java, and are now steaming through the Indian Ocean along the southern shores of the great island of Sumatra (sō-mă'tră).

How hot it is! We are approaching the Equator, and the sun's rays fall almost perpendicularly upon the waveless sea. Sometimes not a breath of air is stirring, but after a while a breeze springs up, cooling our hot cheeks as we sit in our steamer chairs under the awnings on deck. The breeze comes from the mountains of Sumatra, the mighty chain that runs through the western half of the island from one end of it to the other. Many of its peaks are more than two miles in height, and, although they are almost on the Equator, they are crowned with perpetual snow.

The coast is low and covered with a dense vegetation. Coconut trees line the beach. Along the shores we see thatched huts built high upon piles, and farther back among the trees are bigger houses with curiously shaped roofs.

We sail along from port to port, calling first at Telok Betong (tělők'bătöng'), and then at Benkulen (bĕn-kōō'-lĕn), which was the capital of Sumatra when the British held the island for a few years. We spend a day at Padang (pă-dăng'), the chief city on the south coast, and then go around the northwest end of the island to visit the capital city of Medan (mě-dăn'), on the other side.

The port of Medan is Deli (dĕl'ĕ), which is a ride of less than two hours by steamer from the great city of Singapore (sin-gă-pōr'), across the Strait of Malacca. We reach Medan by motoring twelve miles inland along a road lined with coconut palms. It is a prosperous looking town with

some handsome buildings, including a white one-story hotel. The Europeans live in pretty bungalows near the Deli River. In the streets we see many motor-cars, bicycles, and carts drawn by bullocks or water buffaloes. We take rides about the town in *sados* (sä'dōs), little two-wheeled carts in which we sit with our backs to the drivers.

Our journey about Sumatra takes several weeks. The island is enormous. It ranks after Greenland, Borneo, New Guinea, and Madagascar among the largest islands of the world. It is longer than the distance from New York to Chicago, and in one place its width is as great as the distance from Washington to Albany. It is more than three times as large as Java, and is of the same volcanic nature. Much of the western part is broken by lofty peaks. Opposite Singapore and farther east is a vast plain that is under water during part of the year. This is so of Lampong (läm-pöng'), the province nearest Java, the word Lampong meaning bobbing about in the water.

Other parts of Sumatra are made up of valleys and tablelands, some covered with forest, others with tall, coarse grass. The vegetation is much the same as that of Java, except that the forests are denser, the trees more bound together with climbing vines. There are orchids everywhere, and many trees that bear beautiful flowers. As in Java, the teak trees in the forests are very valuable.

We see monkeys in all parts of the island. There are also wild dogs and wild sheep, tapirs, tigers, crocodiles, and rhinoceroses. The rhinoceros lives on the vegetation of the marshy jungles along the coast. It is very fierce when brought to bay, and can easily impale a horse on one of the two great horns that it has just over its nose. Its skin is so thick that the ordinary bullet has no effect upon it, and especially prepared balls are used for hunting it.

We see natives at the ports and on our trips through the interior. Sumatra is thinly populated. It has only about one eighth as many inhabitants as Java, or about four million people in all. They are largely Malaysians, but they are more fierce than the Javanese, and more difficult to control. There are many tribes, each ruled by its native,



Daughters of a native chief of Sumatra.

sultan, rajah, or prince, under the Dutch officials sent out from Holland to act as elder brothers. In some places there is so much rebellion that a large army is kept always on hand.

This is especially so in the province of Acheen (ä-chên'), at the extreme northern part of the island. Acheen is as large as West Virginia. It was one of the first parts of

Sumatra visited by white men. Mar'co Po'lo called there in 1291, and later Queen Elizabeth of England made a treaty with its sultan. The Acheenese have been fighting foreigners for hundreds of years. Every man among them is a soldier, and every village has its company ready for service in time of war.

Acheen is rich in gold and silver, and it produces tobacco, spices, coffee, and pepper. The Acheenese have cultivated farms. They are somewhat skilled in mining and in weaving cotton and other stuffs, and they make beautiful articles of gold and silver.

Just south of Acheen, and in central Sumatra, is the country of the Battaks (bät'äks), a nation of semi-savages. Many of them live in the hills and on the plains about Lake Toba, a body of water similar to Lake Taal in Luzon. The Battaks are taller than the Javanese, and their skins are darker and more hairy. Some of them are Mohammedans, but in out-of-the-way places many are pagans.

The Battaks are good people. They have little farms on which they raise rice, corn, and vegetables. They rear stock and have large pastures and feeding grounds. They make jewelry, weave and dye cotton, and have many civilized ways. The women do most of the work, the men spending much of their time in pleasure. The men are especially fond of a game something like chess.

In all parts of Sumatra the people live in villages, and their houses are everywhere more picturesque than any we have seen since our stay in New Guinea. The houses have walls and timbers wonderfully carved. In some villages they are built high up on posts with ridge roofs ending in sharp horns, covered with tin or laced about with the fibers of palm trees. When the daughters of the family marry, new additions are built, each having its horn; we can tell

the number of families in the house by the number of horns on the roof. The roofs are thatched with palm leaves beautifully laid.

In many of the villages there are *balis* (bä'lēs), or club houses where the people meet to do business and enjoy



A five-horned house in Sumatra.

themselves, and where travelers and visitors are entertained. There peddlers come to show their goods, and there dances, weddings, and funerals are held. The club houses are larger than the ordinary houses. They are built high up from the ground, and one must climb a ladder or stairs to get in.

The natives dress differently in different parts of Sumatra. It is so hot in some regions that the men wear little clothing, except something about the loins, and the children nothing at all. The women everywhere are fond of jewelry. They have gold and silver buckles to hold up their skirts or sarongs. They wear massive rings of gold and silver around their necks, and thick rings of a peculiar shape in their ears. They have rings not only in the lobes of the ears, but also in their rims, and these rings are sometimes so heavy that they have to be tied to the hair to keep them from breaking the ear. The richer girls have sarongs of silk, interwoven with gold and silver thread and decorated with small coins. Some have breastplates of silver coins and necklaces of gold and silver. Among the poorer women, brass, glass, or shells take the place of the precious metals.

Sumatra is a very rich island, except for the unhealthful and marshy sections. On the lowlands there are large plantations of oil palms, tobacco, and rubber. On the higher ground grow coffee and tea, and still higher coca and cinchona. Some of the largest rubber plantations are near Medan, and on one owned by an American company we meet people from home.

Most of us have eaten sago in puddings and desserts. Much of this product is made in Sumatra. It comes from the pith of the sago palm. The tree is cut down and the pith taken out and beaten to a dust. It is then put into a trough through which water is flowing, and rubbed to and fro in the hands until the woody fiber comes off and the sago sinks to the bottom in small, white grains. After this the sago is dried, when it is ready for use.

Sumatra is noted for its tobacco and spices. Tobacco grows well almost everywhere on the island, but there is one region near Medan where the tobacco leaves are so

fine and silky that they are in great demand all over the world as wrappers for cigars. The owners of the plantations are chiefly men from Holland, who import Javanese, Chinese, and East Indians to work their tobacco plantations. Many of the laborers are brought from Java, and are under contract to stay here for at least three years.

We go out to visit the tobacco fields and learn how the crop is raised here. The seed is sown in beds; later, the sprouts are transplanted in the fields. They grow rapidly and at last reach the height of a man, when they are cut down. The leaves are then taken off and dried in great drying sheds covered with thatch.

There is one thing from Sumatra of which we all eat more or less every day. Can you guess what it is? It is something we put in our food to season it, something that can be found in every kitchen at home. It is pepper. It is produced in large quantities in Lampong and in north-western Sumatra, where there is a region known as the Pepper Coast. Sumatra has been growing pepper for centuries, and it now supplies about two thirds of all the pepper used by man, exporting hundreds of thousands of pounds every year.

Pepper as it comes to our tables is usually ground to a black or grayish white powder. In this shape it is sold in the grocery stores, or it can be had in little dried balls that look not unlike black pills. These balls are the dried berries of the pepper plant, a climbing bush which, when full grown, is from twenty to thirty feet high. The plants are set out in cuttings so near together that twenty-five hundred can be grown on one acre. They are carefully cared for and in three years begin to bear. At five years of age they are full grown, after which they will yield fruit for ten or fifteen years more. Each vine produces a pound

and a half or two pounds of pepper annually. There are two crops each year, one of which is gathered in January and the other in July or August.

The berries are first green, then red, and then yellow. When yellow, they are ripe. They are picked as they begin to ripen and laid out upon mats in the sun to dry. As they dry they turn black and are then the black pepper of commerce. White pepper is made by washing off the pulp of the ripe berry, leaving only the stone. This is of a pale gray or drab color.



A pepper vine in Sumatra.

In recent years Sumatra has become one of the important oil-producing regions of this part of the world. We see oil wells as we travel about the island. There are also deposits of gold and silver and copper, and some of the best tin in the world comes from the two little islands of Banka (băn'ká) and Billiton (bīl-ī-tŏn') off the eastern coast of Sumatra.

1. Name the chief possessions of the Dutch in the East Indies. What two islands are partly owned by the British? What island is the most important?

2. Who are the Dyaks? The Battaks? The Acheenese?

3. On the map locate Banjarmasin, Surabaya, Batavia, Benkulen, and Medan. Tell something about each one. Trace on the map two routes by sea from New York to Batavia. Which is the shorter? (See tables.)

4. What spices are raised in the Dutch East Indies? Name other important products. Which is used to make dyes? From what product do most of our dyes now come? (See Carpenter's "How the World is Clothed.")

5. What medicinal product comes from Java? What South American country also produces it? (See Carpenter's New Geographical Reader "South America.")

6. What minerals are found in large quantities in the Dutch East Indies? Name some of the ways in which they are used. How do these islands rank with other countries in the quantity produced?

7. Compare the rice crop of Java with that of the Philippines. The tea crop with that of Ceylon. (See tables.) The rubber output. How does Java rank as a coffee producing country?

8. How are the Javanese governed?

9. What kind of printed cloth is made in Java?

10. What great volcano is in eastern Java? What famous ruin?

XXXIX. CEYLON

WE have been five days on the Indian Ocean, sailing through summer seas, and are now in the harbor of Colombo (kō-lōm'bō), surrounded by ships from all parts of the world. There is a steamer coming in from Calcut'ta, and we have just passed one bound for Sydney, Australia. Our own vessel is a Japanese ship which we got by crossing over from Deli to Singapore, and in the harbor are steamers from Africa and different parts of Asia.

Ceylon (sē-lon') is another great ocean crossroads station, and Colombo is its chief port. It is a beautiful island. We can see the coconut palms lining the shore, and the great mountains far behind them. Ceylon has plains at the north

and around the coast, but in the interior the mountains rise to a height of more than a mile and a half above the level of the sea.

The Arabs had several traditions concerning Ceylon. One was that it was the site of the Garden of Eden, and another that Adam fell here when he was cast out of the garden. The mountain upon which he is said to have dropped is still known as Adam's Peak. A little temple has been



built upon it in which the Buddhists worship. According to one story, Adam walked from Ceylon to the mainland of Asia on the reef of coral that connects the island with Hindustan. This reef is known as Adam's Bridge. These stories are only tradition, but it is interesting to know them.

Ceylon is shaped like a pear with its stem toward India, and is about half as large as the state of New York. Its soil is everywhere rich. In the southwest are groves of cinnamon trees, and in the interior are cacao, coffee, rubber, and tea plantations. Along the coast for miles and miles are coconut and other palms. In the mountains are found rubies, sapphires, moonstones, garnets, cat's-eyes, and other

precious stones, also valuable minerals. One of the latter is graphite, which is used in the lead of pencils. Off the northwest coast are pearl fisheries. The natives go out to the oyster beds in sail boats, from which they dive to the bottom of the ocean. They do not wear diving outfits such as those we saw at Thursday Island. Each man has a weight on one foot to help him sink, and he holds his nostrils shut with his fingers or with a clothespin. The oyster shells found here have yielded millions of dollars' worth of beautiful pearls.

This island was taken by the Portuguese about thirteen years after Columbus discovered America. In the middle of the next century it came into the hands of the Dutch. Later it became a possession of the British, who now rule it through a governor sent out from England.

Ceylon is divided into nine provinces. It has a population of almost five million people. More than half of them are Cingalese (sīŋ-gā-lēz'), a light brown people who originally came from India. In the northern part are many Tamils (tā'mils), another Indian people, darker than the Cingalese, and there are also Europeans, Malays, Chinese, Arabs, and Mohammedans called Moormen. In the mountainous jungles are the Veddahs (vēd'ās), who are descendants of the aborigines of the islands.

The Cingalese are Buddhists, and there are many Buddhist priests here. We shall know them by their shaven heads and their yellow robes, which are draped so as to expose the right shoulder. The priests frequently go about with begging bowls in their hands, asking every one for something to eat or for a gift for the church.

Now we have left the steamer. As we cross the wharves, we see chests of tea being brought to the waiting ships in carts drawn by cream-colored bullocks with humps on their

backs. Everywhere we meet automobiles and motor-trucks, and there are street cars running on several of the streets.

Colombo is a city about as large as Toledo, Ohio, and is well laid out, with well kept streets and large public buildings. Look about you at the crowds! Those men with the dark coats or jackets, over petticoats of white cotton, are Cingalese. Some of them part their hair in the middle and put it up in a sort of knot at the back, in which is a tortoise shell comb. Were it not for their beards, we might think them women. The Cingalese women wear plaid skirts and loose white jackets. They tie their hair in a knot at the back, but many go bareheaded.

See that man over there in red and white robes, with a tattooed forehead and a turban on his head! He is a Tamil, and those women near by are of the same race. Nearly all of them are barefooted, and some have their feet covered with jewelry. They have anklets and toe rings, rings on their fingers, rings about their necks and in their ears, and also buttons and rings in their noses.

As we go on, we meet Arabs with shaven heads, long-bearded men from Afghanistan', and Par'sees from Persia and India, who wear headdresses that look like black coal scuttles turned upside down. In the native quarter we see coolies whose only clothing is a loin cloth, merchants in flowing robes, and babies wearing nothing at all. Now we stop to watch a juggler, now to look on while a snake charmer handles deadly cobras. In the markets we find fruits and vegetables like those of Java. Occasionally we stop to purchase a basket, a tortoise shell box, or a piece of metal work. All the things are made by the natives.

Suppose we take a ride in a bullock cart. We make a bargain with a half-naked black driver, who promises to



School children in Ceylon wear gay-colored garments of cotton cloth.

take us into the outskirts of the city. We go first to the Cinnamon Gardens, where we see the museum, and then into Queen Street, past the governor's palace. We drive out through the country, hurrying under the palm trees that hang over the roads, for fear a ripe coconut may drop on us as we drive by. We pass beautiful villas, and see mahogany trees, bamboos, gutta-percha trees, and old banyans, which cover the ground like gigantic umbrellas. At one place our driver points out a rain tree. The leaves of this tree close at night and gather moisture, and when they open in the morning, the drops fall like rain. We see boys playing football and cricket, and then drive along the harbor to watch the brown-skinned fishermen sailing about in their catamarans. These are long, narrow, canoe-like boats with square sails and with outriggers to keep the craft from tipping over and throwing the men into the water.

The following day we take the railroad train to Kandy, which is in the mountains, seventy-four miles from Colombo. The train climbs the beautiful hills through terraces of rice fields, plantations of tea and coffee, jungles ablaze with orchids, and forests that contain ebony, satinwood, and cinchona.

In the forests are leopards, bears, water buffaloes, and deer; and now and then we see herds of elephants bathing in the streams. There are several thousand tame elephants in Ceylon, used to haul logs out of the forest, and there are great herds of wild elephants roaming through the jungles. They are caught with ropes, or are driven into strong pens. They are not hunted for their ivory as are the African elephants, for here only the male animals have tusks. We are told also that the Ceylon elephants have eyes and ears much smaller than those of the African species.

At Colombo it was hot, notwithstanding the sea breezes,

but in Kandy we enjoy the bracing air of the hills. The city is interesting. It has scores of temples and mosques, as well as Christian churches, and in the Temple of the Tooth is said to be a tooth of Buddha, the founder of the Buddhist religion. There are beautiful drives and bridle paths, pretty lakes, and a wonderful botanical garden and zoölogical park. On the street we often see native chiefs dressed in starched white muslin trousers, short jackets, and embroidered caps and girdles. Occasionally there is a Tamil festival, when dances are given by people wearing hideous masks.

Ceylon has thousands of miles of fine macadam roads, so we can reach many parts of it by motor-car. It produces a great deal of tea, tobacco, coconuts, coffee, cacao, and rubber, and we visit several of the plantations. The rubber is exported by millions of pounds to the United States and to Europe. The plantations are owned chiefly by people from Great Britain, who employ the Cingalese to cultivate them, using the Tamils for the harder kinds of labor.

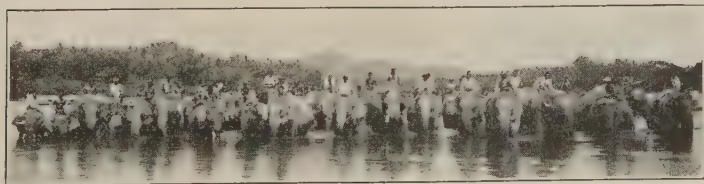
On the tea plantations, the leaves are picked by women and girls, the picking continuing from April to November. We learn that green and black tea come from the same bush, the leaves being fermented to make black tea. Almost two hundred million pounds of tea are exported from Ceylon every year, most of it going to Great Britain.

The coconut estates are especially interesting, not only from the vast amount of copra produced, but also because of the uses that the natives make of the tree and its nuts. The tree forms the building material for their huts, including the roofs. From the bark and leaves they make sheds, fans, and matting, and from the fiber is manufactured fishing nets, ropes, and sails. Some of the natives wear clothing made of the net that Nature weaves about the stalks of the leaves. The ripe fruit, when pressed, gives them

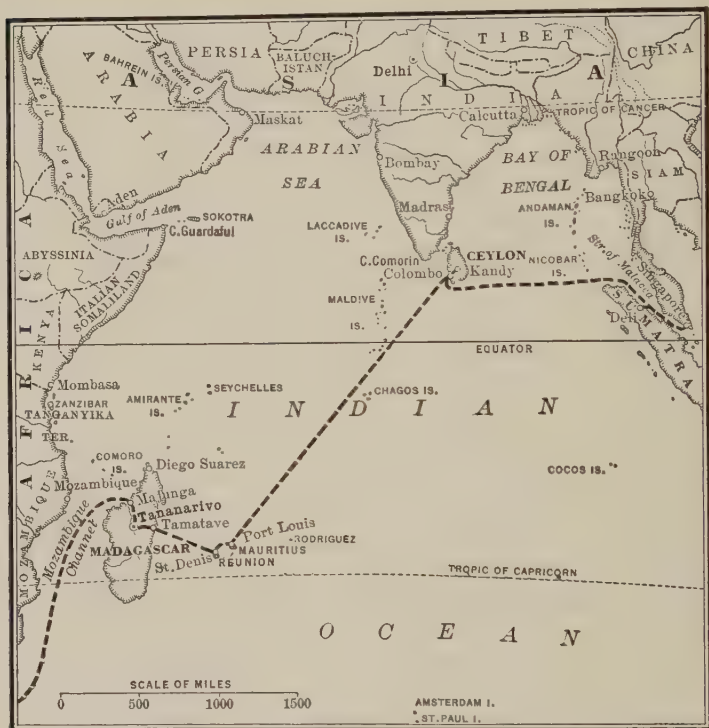
oil for their lamps and for cooking, and they also use it on their hair and skins. They make a salad of the young leaves, they drink the milk of the green nut, and they use the meat of the ripe nut for food. They make a medicine from the flower, and sugar and wine from the sap. The shells are used for drinking cups, spoons, and bottles, and the trunk of the tree, hollowed out, forms an excellent boat.

Ceylon has orchards of cacao trees, from the seeds of which chocolate is made, and also cinnamon trees, the bark of which we use in pickles, candies, and desserts. The cinnamon tree is a species of laurel, with leaves of a bright, glossy green, and a bark composed of thin, separate layers, containing a spicy sap very pleasant to taste. The outside bark is rough and gray, and the inside smooth and reddish.

The cinnamon tree as it grows in the forest is as large as our pear tree, but the cultivated varieties are kept trimmed down to a height of about eight feet. They are planted from the seeds and grow rapidly, sending out strong shoots from year to year. The more the trees are trimmed, the more shoots they have, and from them comes the commercial cinnamon bark. When the shoots grow to the length of an ordinary cane, they are cut off and stripped of their bark. The bark is dried in the sun, and then packed up in bundles, to be exported to Europe and other parts of the world. Sometimes it is ground and sold as a powder, and sometimes an oil is made from it which is used for medicinal purposes.



Elephants fording a stream in Ceylon.



Our route across the Indian Ocean.

XL. ISLANDS OF THE INDIAN OCEAN

TO-DAY we are again on the Indian Ocean, bound for Mauritius (mô-rish'î-ûs), another island which belongs to Great Britain. The weather is warm, but we have awnings over the deck and enjoy a stiff breeze most of the way. Shortly after leaving Ceylon we pass the Maldive (măl'div) Islands, going so close to them that we can see the coconut

trees on their shores and the spray of the waves dashing up on the white beach. The Maldives are seventeen atolls, inhabited by a small population of Mohammedan Asiatics, and are of little commercial importance. They are ruled by a sultan under the protection of Great Britain. Very similar to them are the Lacadives (lāk'ā-dīvz'), other atolls almost directly north.

We cross the Equator and go on to the southwest, between Seychelles (sā'shēl') and the Chagos (chä'gōs) Islands, two other unimportant groups belonging to the English. Their chief product is coconuts.

About a week after leaving Ceylon we come to anchor in front of Port Louis (lōō'is), the capital of Mauritius. We are on the western side of the island, under the shadow of rough, ragged mountains, at the wharves of a little city shaded with coconut, mango, and other tropical trees. The vegetation reminds us of that of Ceylon. There are oranges growing in the gardens, and banana plants hanging over the fences.

We are met on the docks by a motley crowd of East Indians, Arabs, Chinese, and black-skinned Africans, some of whom offer to guide us through the city. We see bags of sugar piled on the wharves, and in some parts of the town the air smells like new-made molasses.

Mauritius is famous for its sugar. It was little more than a forest when it came into the hands of the English about a century ago, but they have turned it into a huge sugar plantation. They have brought laborers from India, Africa, and China to work the cane fields, and hundreds of millions of pounds of unrefined sugar are now exported every year. The island is only a little more than half as large as Rhode Island, but it is thickly settled because of its rich soil. It has more than two hundred thousand Hindus, and a

large number of Africans. Many of the Hindus and Chinese have saved money and now own plantations themselves. They have stores in Port Louis.

We ride out on the railroads which lead from the capital to different parts of the island, now passing through a coconut grove, and now getting a glimpse of a vanilla plantation. Most of the way is through sugar estates, where dark-skinned men and women are working away plowing, planting, and cutting the cane. We stop at a factory to see the juice pressed out and made into sugar, and then return to Port Louis.

Before leaving Mauritius for Reunion (rê-ün'yŭn), which belongs to the French, we learn something of many other islands that Great Britain owns in and about the Indian Ocean. South of Arabia it has the island of Sokotra (sô-kô'trà), which exports dates and gums, and in the Persian Gulf the Bahrein (bä-rän') Islands. This group is the center of important pearl fisheries, and more than one thousand boats are engaged in the industry. In the Bay of Bengal' off the coast of Burma, the British own the Andaman' Islands. These were formerly used by India as a penal colony. They produce coconuts, rubber, and Manila hemp. South of the Andamans are the Nicobars', which also yield coconut products.

Reunion is only one hundred and thirty-five miles from Mauritius, and we are not long in reaching it. It is much like Mauritius, save that it is a little larger, more mountainous, less fertile, and has not so many people. Its capital is St. Denis (săn'dē-nē'), a little city made up of East Indians and Africans, with many French merchants and planters. There are three other good-sized towns. The language is French, and we find it hard to make ourselves understood, unless we speak that language.

There are railways running out into the country, and we visit the sugar plantations and also those that produce coffee, cacao, and vanilla. From the vanilla plant comes the extract that we use for flavoring puddings, cakes, ice creams, and candies. It is a climbing plant, with a long, fleshy, fruitlike pod from which the extract is made. The plants are grown from cuttings set out in the shade; they are trained upon stakes and carefully tended. They produce fruit at three years of age, after which they bear for many years. We walk through the plantations under the trees, now and then pulling off a pod and biting into it, trying to imagine that it has the flavor of the vanilla ice cream that tastes so good at home.

XLI. MADAGASCAR.

IT is almost four hundred miles from St. Denis to Tamatave (tämä-täv') in Madagascar. The voyage takes about two days on our slow-going steamer, and it is early morning when the cabin boy tells us to get up, for we are in sight of the island. Our vessel is steaming along a low coast, densely wooded, and backed by high mountains covered with green and half hidden in low-hanging clouds. That coast is a part of Madagascar, an island almost as long as Sumatra and of the same general shape, although wider. It is larger than France, to which it belongs, although its population is only one tenth as great. It lies two hundred and forty miles off the eastern coast of Africa.

Madagascar consists of three great natural divisions: a range of high mountains sloping steeply down to the sea at the east, an interior plateau rising several thousand feet above the sea, and a comparatively low and level country



at the west. The plateau, owing to its altitude, has a good climate ; but the low coast lands are unhealthy and malarial. The island is rich. Its soil is fertile, and its mountains have mineral deposits of many kinds. There are gold, copper, iron, sulphur, nickel, zinc, silver, and lead, as well as mica, antimony, manganese, and graphite. During the World War the graphite production was much increased. Petroleum has been discovered here, and precious stones are mined, including beryls, garnets, topazes, amethysts, and tourmalines.

The port of Tamatave, which we are now approaching, is half way down the eastern coast, and is the chief gate to Madagascar. It is visited regularly by the steamers of French shipping companies, and occasionally by boats from other parts of the world. There are other good ports also. At the extreme northern part of the island is the harbor of Diego Suarez (dē-ā'gō swā'rās), and on the western side, at the mouth of the Betsiboka (bet-sē-bōk'à) River, the port of Majunga (mā-jūn'gä).

Now our steamer turns and moves slowly in toward the shore. We pass through an opening in the coral reef, and come to anchor at a long pier in an excellent harbor before a town unlike any we have yet seen. There are coconut, mango, and bamboo trees close to the beach, and back of it is a city of one- and two-storied, bright-colored houses, with here and there a church tower or steeple rising above the roofs. Off at one side are many thatched huts, the homes of the natives, and behind are cultivated lands extending to the hills. The town is low and sandy, and right on the beach.

Boats rowed by black-skinned men with white sheets wrapped around them come out to the steamer and take us ashore. As we land, other white-gowned men lay hold

of our baggage and carry it upon their shoulders or their heads up the sandy road to the hotel. The way is well shaded and is lined with little peaked-roofed houses with gardens about them.

The street is crowded, and we move in and out of a throng of white, yellow, brown, and black people, all curiously clad. The whites are the French and other Europeans who live here to do business or take part in the government. There are French customs officials and French soldiers. We learn that the French have an army to keep the country in order. Many of the soldiers are natives, who seem to feel very important as they march about with guns in their hands. They are dressed in gay uniforms, and their black skins and bare feet are in strange contrast to their bright-colored clothing. They make good soldiers, and during the World War many thousands of them fought at the side of the French.

Some of the people we meet are Hindus, Chinese, and Arabs who are engaged in trade here, and the browns and blacks are natives of Madagascar; some from the interior, others from along the coast. How odd they look! Many have wooly hair and black skins, and are almost Negroes in feature; others are brown and more like the Malays or East Indians.

Notice how the natives are dressed. The men wear great straw hats, and they have white cotton cloths draped about their dark bodies, leaving the legs and feet bare. The women wear high-waisted gowns of bright-colored calicoes, which make them look tall. How their hair shines! They wear no hats, and their hair is put up in little braids that stand out all over their heads, or are fastened together with string. They grease their hair with coconut oil, the rancid odor of which is borne to our nostrils. See their bare feet!

That wide space between the first and second toes comes from wearing sandals.

Some of the people are squatting on the streets, chatting; others are moving to and fro, carrying burdens. There comes a porter bringing hides to the steamer. They are hung upon a pole that rests on his shoulders. Beside him walks a woman with a water jar on her head and some roots in her hand. Both stop as we pass them.

See that woman coming down the street high up between poles on the shoulders of men! She is a Ho'va woman, riding in a *filanzana* (fil-ăn-ză'nă), the native cab or carriage of Madagascar. The *filanzana* is merely a seat with a leather back and a rest for the feet, swung between two long poles and fastened to them by bars of iron. The poles are borne by men, two in front and two behind, who thus carry travelers through the streets and over the country. Before the French built good roads in Madagascar, these *filanzanas* were in common use, and we shall see many still, as only part of the roads are good enough for motor-cars.

XLII. TANANARIVO AND THE CENTRAL PLATEAU

TANANARIVO (tă-nă'nă-rē'vō), the capital and largest city of Madagascar, is about one hundred and fifty miles in a straight line from Tamatave, but by the railway it is more than two hundred miles. There is also a road to the capital, and we shall travel by both routes, going by carriage part of the way so that we may study the country and the people. The carriages are not unlike the *jinrik'-ishas* of Japan. Each has three men to help it along, one in the shafts and two pushing behind.

As we leave Tamatave, we pass men and women coming into the city to market. All carry umbrellas, and many of them look gay in their bright-colored clothing. There are coconut trees here and there along the road, and when we



Sometimes we see a traveler's palm.

become thirsty, we drink the sweet liquid from the green nuts. Now and then we see other species of palms, and frequently spy a traveler's palm. This is a tree like a great open fan. It has long leaves extending out on each side of its lean trunk. The stems of the leaves are hollow where they join the trunk, and they form troughs, in which the

rain water collects in such quantities that one can always have a drink if he finds such a tree. We prefer, however, to quench our thirst from the water in the coconuts and from the many brooks we cross on the way. There are fish in the brooks. The larger streams have falls that some day may be used to generate water-power.

We travel rapidly, now and then passing through a village of thatched huts, consisting of one long street shaded by mangoes, palms, and other trees. The roofs of the huts are made of palm leaves, and the walls are of bamboo or raffia.

The houses have but little furniture, and the people usually sit and sleep on the floor. In one corner of each hut is a fireplace, a box filled with sand, with stones so laid upon it that they raise the pans and kettles over the fire. The water buckets are bamboo logs such as we saw in the Philippines, the ordinary bucket being as big around as a man's arm and often eight feet in length.

We spend one night at such a village, hiring huts for our party. We sleep on the floor, rolling up our coats for pillows, and spreading our traveling rugs on the rough mats to make our beds softer. Nevertheless, our sleep is not sound. The floors of the huts are several feet from the ground, and the fowls and dogs are kept under the houses. We hear the hens cackling and clucking, and the roosters crow long before morning. Spiders and lizards are crawling about, and we are told not to walk in our bare feet lest we step on a scorpion or other dangerous insect.

The next morning we go farther inland by train. As we climb the hills to the plateau, we pass through forests. The trees are tall and bound together with creepers and vines. There are many tree ferns and beautiful orchids, and the forests are rich in valuable woods, gums, and tree bark.

At last we are through the forests and on the plateau. We see more little villages, but here the houses are mostly of adobe (ä-dō'bě). We travel over rolling prairies covered with grass upon which humped cattle are feeding. We pass many small farms where men are plowing with humped oxen, four oxen often being hitched to one plow. This plateau produces the crops of the temperate as well as the torrid zone, and during our journey from the coast we see rice terraces, fields of corn, manioc, peas, beans, peanuts, sugar cane, and cotton. There are trees that yield cacao, vanilla, and cloves; and the island produces also tobacco, rubber, fruit, and silk. Some of the silk comes from spiders instead of silk worms, and there is a species of ant that forms a valuable wax. Several of these products are exported, the most valuable being rice, hides, meat products, canned vegetables, tanning bark, and vanilla, together with graphite and raffia fiber.

Finally we come to a hill where we have our first view of Tananarivo. The city is situated almost a mile above sea level, in the heart of this mighty plateau. It is built upon the top and sides of a ridge that is about a mile and a half long and nearly five hundred feet high. As we come nearer, the town takes on a reddish tint. Many of its houses are of red brick and red stucco, which give it a rose color under the strong rays of the sun.

Having arrived at the city, and riding about it in carriages, we find it less beautiful than it was in the distance. Most of the streets are narrow, with innumerable alleys crossing them in every direction. Many of the houses have mud walls around them, there are frequent gullies, and the town looks exceedingly rough.

Still, we find many comfortable two-storied houses and some fine public buildings. We visit the old palace of the

last native queen. It is a great stone structure with galleries about it, and it can be seen all over the city, towering above the other buildings. It is now used as a museum. We go to the palace of the French governor-general and several other government buildings. We visit the churches, learning that many of the people on the island are Chris-



Courtesy of the Geographical Review

Quaint houses surround the palace of the last native ruler.

tians, and that missionaries have long been at work among them. There are good schools here, and every boy and girl between the ages of eight and fourteen is supposed to attend. The teaching is in French. Some schools give courses in agriculture and industrial arts. Many of the natives learn tanning, weaving, pottery making, blacksmithing, and cabinet work.

Friday is the great market day, when the natives come in from all parts of the country to buy and sell. We go to the market place at that time. It is filled with strange looking people, among whom are some of the uncivilized blacks from the south. The wares are of every description, including beautiful silks and cottons woven in Madagascar, native pottery, and all sorts of food and grains. There are delicious pineapples, bananas, and oranges, and bushels of peanuts quite as good as those we have at home.

In one part of the market cattle are sold, and in another, hides. We learn that some hides are shipped from here to the United States. We see queer-looking natives handling the skins, and we wonder whether parts of our shoes may not have roamed over this great plateau on the back of a humped cow like the ones now offered for sale.

Farming and cattle-raising are the chief occupations of the Madagascar natives. Besides cattle, there are many horses, sheep, and goats, as well as ostriches that are raised for their plumes. Much of the beef is canned or dried for export.

XLIII. THE HOVAS AND THE SAKALAVAS

IN coming from Tamatave to Tananarivo, we have seen much of the natives of Madagascar. All of them are generally known as Malagasy (māl-â-găs'ě), but there are several distinct races. What queer names they have! In the north are the Antankarana (ăn-tăn-kâ-ră'nâ), in the east the Betsimisaraka (bět-sē-mě-sâ-räk'â), the Betanimena (bět-ăn-ĩ-mēn'â), and the Antimorona (ăn-tĩ-mō'rō-nâ), in the south the Antanosy (ăn-tăn-ō'sě), the Antandroy (ăn-tăn'droy), and the Mahafaly (mă-hă-fă'ly), in the west

the Sakalava (säk-ä-lä'vâ), and on the plateau the Hova (hō'vâ), Bara (bä'râ), and Betsileo (bět-sê-lä'ō) tribes.

The most important people are the Hovas, in the central part of the great plateau, who number at least one third of the whole population. They have brown skins and straight or wavy hair; they look not unlike Malays, and are supposed to be the descendants of Malays who emigrated to Madagascar centuries ago.

The Hovas were, for a long time, the ruling race of Madagascar. Their territory was large and they administered it in a semi-civilized way. They had their own monarchs and held more or less intercourse with other nations of the world. Later, the French, who had long laid claim to Madagascar, took possession of the island and subdued the natives, making it a French colony. They deposed and banished the queen of the Hovas, and chose Tananarivo, the old Hova capital, as their seat of government. To-day there are many Hovas acting as lower officials in the government.

As we leave Tananarivo and make our way to the port of Majunga, on the northwest coast, we travel part of the time through the land of the Sakalavas. There is a good road extending part of the distance, and we go over it by motor-car. In some regions we are carried in flanzanas, and toward the end of our journey we are able to take boats on the Betsiboka River. After a little more than a week from our starting time, we find ourselves in Majunga.

The Sakalavas are a black people with features like Negroes, more fierce and less civilized than any of the natives we have yet seen. Some of the men have ornaments on their foreheads. They wear white cloths about their dark forms, and their woolly hair is done up in little braids. The women also have curious ways of dressing their hair, some

twisting it so that it stands out in great round tassels on all sides of the head. Both sexes are fond of jewelry, and wear all they can get.



Courtesy of the Geographical Review

A native woman of Madagascar.

The Sakalava villages are ruder than those of the Hovas. Some of them have walls about them with great fences of cactus outside, and heavy gates that can be closed at night. Many of the houses are huts of mud bricks. There are pigs everywhere. We are troubled with

mosquitoes and all sorts of vermin. On our way we pass large herds of cattle. Many of the Sakalavas are farmers and stock breeders, and a man's wealth is estimated by the number of cattle he owns.

We go through a belt of forest on our way down from the plateau, and at night hear the lemurs (lē'mūr) howling in the woods. The lemur is found in most parts of Madagascar. It is a sort of half ape with a long tail, large eyes, soft woolly fur, and a head not unlike that of a cat, though with a more pointed nose. Tame lemurs are kept as pets in some of the villages. These animals make us think of foxes or monkeys, and they are supposed to belong to the monkey tribe. Some lemurs are white and black, some have white fur rings about their black tails, and some have a fringe of long hair around the face, like a ruff. They are night ani-

mals, prowling about through the darkness and often howling in concert, like cats. They are timid and will not attack a man unless they are brought to bay.

1. Name the chief islands in the Indian Ocean. To what country does each belong? Which are the most important?

2. Who are the Cingalese? The Tamils? The Hovas? The Sakalavas?

3. What are the principal products of Ceylon? In what other countries is rubber grown? Where was it first produced for commercial purposes? (See Carpenter's "Asia" and "South America," also "How the World is Clothed.") Trace on the map the route of a cargo of rubber from Ceylon to Akron, Ohio.

4. What is the difference between green and black tea? Name the chief tea-producing countries. (See tables, also Carpenter's "Asia.") Trace the route of a shipload of Ceylon tea bound for Liverpool.

5. Name some of the uses of the coconut palm.

6. What is cinnamon, and how does it grow?

7. What British island in the Indian Ocean raises large amounts of sugar? Of vanilla?

8. What are the chief occupations of the people of Madagascar? Name some of the exports.

XLIV. WEST AFRICAN ISLANDS — FROM ST. HELENA TO THE CANARIES

THERE are four principal groups of islands lying off the west coast of Africa, all opposite the upper half of the continent. The first are the Azores (ă-zōrz'), far west of the Strait of Gibraltar; next are the Madeira (mă-dē'rá) Islands, and still farther south the Canary and Cape Verde (vŭrd) archipelagoes.

West of the southern half of Africa are only scattered islets, chief of which are several in the Gulf of Guinea be-

longing to Spain and Portugal, and also the British islands of Ascension, St. Helena (hě-lě'nà), and Tristan da Cunha (trīs-tăn' dă kōōn'yä), which are far out from the coast. The largest island in the Gulf of Guinea is Fernan'do Po, a possession of Spain. It is peopled by Negroes, its commerce is small, and its climate is unhealthful, so we shall not explore it.

Tristan da Cunha, Ascension, and St. Helena are of no commercial importance; nevertheless, we want to stop at St. Helena. Why? Because it was for several years the prison of Napoleon Bonaparte, the famous emperor of the French. He had at one time almost conquered Europe, but was defeated and banished to the little island of Elba in the Mediterranean Sea. After being there a short time he escaped, and, returning to France, raised another army and fought the allied forces of Europe at the battle of Waterloo. Napoleon was defeated, taken prisoner, and finally sent to this rocky island thousands of miles from Paris, twelve hundred miles from the coast of Africa, and seven hundred from Ascension, the nearest land. Soldiers were stationed on the island to guard him, and although he was given a house and every comfort, he was practically a prisoner until he died in 1821. His remains were first buried on St. Helena, but they were afterward removed to Paris and there placed in a magnificent tomb.

St. Helena is a volcanic island, rough and ragged. It is but forty-seven square miles in area, and has about four thousand inhabitants. Its only export is flax fiber, several hundred acres of land being planted to this grain. There are flax mills on the island, and the women make fine lace. St. Helena is a coaling station, and is chiefly important as a stopping place for some of the ships that ply between England and the Cape of Good Hope.

In calling at St. Helena, we enter the harbor of Jamestown. We climb up Ladder Hill at the back of the town, and over Rupert Hill to Longwood, where Napoleon lived. We next visit the Valley of the Tomb, where he was first buried, and then return to our ship.

Steaming northward, we touch at the island of Ascension, noted for its enormous green turtles, some of which weigh as much as a cow. We then go on north to the Cape Verde Islands, situated several hundred miles west of Cape Verde, Africa, for which they are named.

The Cape Verde Islands belong to Portugal. They are

fourteen in number, but their total area is not much greater than that of Rhode Island. They are of volcanic origin, most of them being made up of high mountains covered with lava.



Our route among the West African islands.

On the island of Fogo (fō'gō), there is an active volcano. Some of the islands are all rock, and others contain patches of coffee, rice, corn, millet, sugar, and tobacco. Cotton and indigo grow wild in the woods, and medicinal forest products are exported. Salt is evaporated along the swampy lagoons bordering the shores of some of the islands.

The town of Praia (prī'ä), on the island of Santiago (sän-tê-ä'gō), is the capital of the archipelago, but our ship stops at St. Vincent, coming to anchor off Porto Grande (gränd'ě), which has the best harbor. It is a little bay half surrounded by volcanic hills. How dry and dreary it is! There is not a blade of grass to be seen, and the brown lava rocks throw back the rays of the sun, making it hotter than ever. St. Vincent has little rain, and its vegetation is scanty. Still, it is the most important island in the group. It is a coaling station on the ocean highway to South Africa. Those sheds on the wharves are filled with coal from Cardiff, Wales, and that town back of them is occupied chiefly in furnishing coal and other supplies to the steamers. There are gangs of Negroes at work coaling the ships, and we can hear the great lumps as they rattle down into the hold of our vessel.

Our next stop is at the Canary Islands, opposite Morocco. The Canaries are volcanic islands, rising steeply out of the deep waters of the ocean. There are only about seven of them large enough to be considered important, and many smaller ones. They were discovered by an Italian from Genoa, the same city from which Columbus came, about two hundred years before the latter discovered America. They afterward became the property of Spain, and are now ruled as one of the provinces of that country. The original inhabitants were Africans, but they have long since disappeared, and now almost all the people are Spaniards.

The islands have but a small area, in all not much more than three fourths that of Porto Rico, and their population is but a few hundred thousand. They are very beautiful, however, and their climate is so mild that many people from England and other parts of Europe visit them during the winter.

One of the most striking features of the Canaries is Mount Teneriffe (tĕn'ĕr-ĭf'), whose snow-white peak rises more than two miles above the sea and is visible long before we reach the islands themselves. It is on Teneriffe, the largest island of the group, that we make our first landing, anchoring at Santa Cruz, the capital of the archipelago.

We seem to be in one of the cities of old Spain. The houses are of brick and stone, covered with stucco, painted yellow, blue, and other bright colors. They are close to the streets, and some of them surround patios or courtyards, the garden often being in the center of the house, with rooms all around it. Some buildings have towers on their roofs, where the people sit in the evening, enjoying the view. We stroll about the narrow streets, spelling out the Spanish signs over the stores, and drive out through the suburbs past the great walled ring used for bull fighting.

The Canaries are noted for their wines and fruits. We drive over roads lined with vineyards and orchards, and see date palms, olives, bananas, and oranges. We stop at one place and buy a dozen ripe, juicy oranges for a sum equal to ten cents of our money. They are more delicious than any we have tasted at home, for they are fresh from the trees.

Riding back, we go along hills dotted with fine residences, gardens, and fields of rich crops. There are large tracts of sugar cane; and tomatoes, onions, and potatoes are raised for export. The roads are lined with cacti, geraniums, and

roses, and now and then we see a patch of nopal (nō'pāl) plants, a kind of cactus that is grown to feed an odd little insect that furnishes one of the dyestuffs of commerce. Have you ever heard of cochineal? It is a dye of the most brilliant crimson, which may be changed by chemicals to orange, red, and bright scarlet. The dyestuff is made from the dead bodies of the cochineal insects, which feed on this plant. When the plants are a year old, some of the little insects are placed upon them. They lay their eggs, and in a short time the leaves are covered with tiny white specks, which, if touched, leave a bright crimson stain. The insects keep on growing until they cover the plants with what seems to be a white mold. Soon after this they are carefully scraped off, the branches of the cactus put into bags, then into boiling water, and afterward dried by exposure to the sun or to the heat of an oven. They now look much like grains of buckwheat, and are ready to be shipped to dye factories all over the world.

Returning to Santa Cruz, we take a little steamer that makes a tour of the islands, spending a day at Las Palmas, the capital of the Grand Canary Island. The name of this archipelago comes from a Latin word meaning dog, because the earliest explorers found large numbers of huge dogs here. Canary birds originally came from here, and were named after the islands. As we travel about, we hear many wild birds singing in the trees.

We take automobiles and ride through the city and the country, mingling with the people. We learn that many of them catch fish for a living, and we visit factories where the fish is salted or dried for export. We see tobacco factories also, and in the homes of the people we watch the women making beautiful embroidery or lace.

XLV. THE MADEIRAS AND THE AZORES

AS PALMAS has frequent ships to the Madeiras, so we have no trouble in getting a vessel that takes us northward to Funchal (fōōn-shäl'), the capital of the island of Madeira, the chief of the group. As we come into its harbor, we seem to be entering a vast amphitheater, walled with hills, dotted with villas, and terraced with gardens, orchards, and vineyards.

Many small boats, manned by half-naked boys, put out for our steamer as we come in, and the boys ask us to throw money into the water and let them dive for it. We do so, and they leap from their boats into the sea, coming up holding the coins in their hands or teeth. They gasp for breath a moment or two, and then call out for more coins.

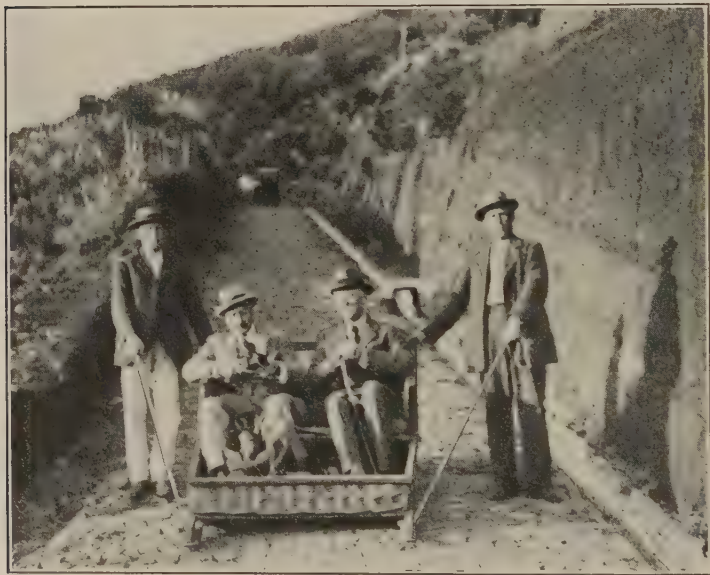
As the anchor drops, peddlers swarm on our ship, offering us jewelry, embroideries, flowers made of feathers, and delicious oranges, bananas, lemons, pineapples, and pears. The people have white skins, and their dress is not unlike that of Europeans. They are Portuguese, the islands being a province of Portugal.

Going ashore, we walk up the cobblestone street to the hotel. What queer sights we see! Madeira is noted for its wicker work, and we meet both men and women carrying on their heads great loads of baskets, chairs, or even settees. Here is a woman selling flowers, and here is a milk man carrying two cans slung to a rod across one shoulder. There are men bearing skins filled with the wine for which Madeira is famous, and even children go about with burdens on their heads.

Funchal is like a city of Portugal. Its better houses are two, three, and sometimes more stories high. The windows

along the streets are barred like those of a prison, and those above have little balconies where the people sit in the evening. The streets are narrow and steep, and the cobblestones are hard to walk on.

The Madeiras have as fine a climate as may be found anywhere, and people from all parts of Europe come here



Sledding on a steep road in Madeira.

for their health. Every winter several big ocean liners stop on their cruises, and thousands of tourists visit the island.

Later, we go out into the country. We do not take automobiles, as there are only twenty miles of road fit for a motor-car. We shall get about better in bullock or mule

carts. Much of our travel is upon sledges drawn by bullocks. The roads are paved with smooth cobbles, and the sleds, which have greased runners, glide over them easily. Each team has a boy who goes along in front and a man who walks behind, jabbing the animals with a goad to make them go faster. Going down hill, we often ride in sled-like chairs without any animals to pull us. The runners shoot along as though over snow. Imagine sliding down hill in the most beautiful May or June weather, eating oranges as you go! That is one of our experiences in Madeira.

Our trip through the island is most delightful. We watch the native women making the beautiful Madeira embroidery, and buy several handkerchiefs, napkins, and doilies to take home.

We ride past women washing clothes in little streams beside the road. We bathe in the surf on the fine beach. We stop for food at thatched cottages on the mountainsides, visit a sugar plantation where the cane is being loaded upon trucks to be taken to the mill, and at last make our way back to Funchal.



Woman of Madeira working at embroidery.

After leaving Madeira, we visit the Azores before going east into the Mediterranean Sea. This archipelago is a little group of nine inhabited islands, having less land than a single county of some of our far western states. The soil is good for fruits. Pineapples, oranges, grapes, and bananas are raised here and shipped to Portugal, England,



A cottage in the mountains near Funchal.

Brazil, and the United States. The production of pineapples is especially important. The resin of a curious tree, called the dragon tree, is also an article of export.

The Azores are about as far from Africa as Pittsburgh is distant from the Mississippi River, and they are almost as far away from Portugal, to which country they belong. They rise abruptly out of the ocean, having been forced up by volcanic eruption. Some of them are little more than volcanoes, and one has a crater so low that the water has

rushed in and formed a great lake into which boats go through a break in the brim. Mount Pico (pē'cō), the highest volcano, rises more than seven thousand feet above the sea.

Our steamer from Madeira carries us over sunny seas. Look! There is a whale spouting at the right of the ship, and nearer us a school of flying fish skim over the waves. One has jumped high up and fallen upon the deck of our steamer. It is like a small mackerel, but on the forward part of its body it has winglike fins, each as long as one's hand. Other fish, such as tunny and mullet, abound in these waters. Porpoises, dolphins, and whales are fairly common; indeed, whale-fishing is a profitable industry here.

We see Mount Pico before we come in sight of the rest of the Azores. As we approach the land, we can make out orchards on the hills, with windmills waving their arms above the trees, and white villages along the shore below.

We land at Ponta Delgada (pŏn'tä dël-gä'dä), the chief city of the archipelago, on the island of San Miguel (sän mē-gěl'), the largest of the group, and make our way up the street. What a curious city! The buildings are of all the colors of the rainbow. The houses and stores are painted rose pink, sky blue, and bright yellow. There are many white houses, red houses, and houses of brown, gray, and purple. The buildings are close to the sidewalks, which are often laid in patterns like mosaics. The roofs are of red tiles, and the whole city is a patchwork with as many colors as Joseph's coat.

The natives are Portuguese, not unlike those of Madeira, although their dress is somewhat different. Those of the better class wear clothes just like ours, but now and then we pass a woman clad in the old-fashioned national costume: a

hood of dark cloth, for all the world like a gigantic sunbonnet, and a cape that reaches almost to her feet. A few of the men have high hats of blue cloth, and large capes thrown over their shoulders. Still others have tasseled caps. The poorer women wear shawls or handkerchiefs about



A street scene in Ponta Delgada.

their heads, and their dresses are as bright colored as the walls of their houses.

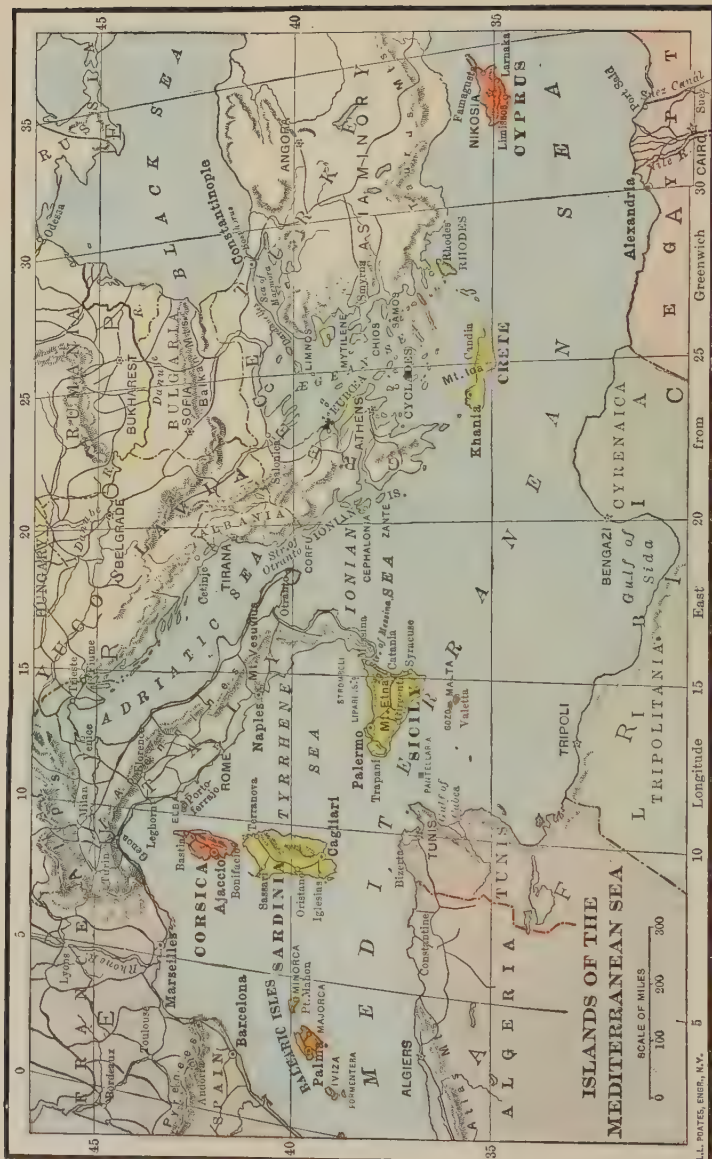
We take donkeys and ride about through the towns. Donkeys are used here for all sorts of work. They carry great loads on their backs, they haul carts, and they are also the chief riding animals.

XLVI. THE BALEARICS, CORSICA, AND ELBA

WE have now left the Azores and are passing through the Strait of Gibraltar into the Mediterranean Sea. That great yellow rock on the left, with the guns frowning out of its fortifications, is Gibraltar. It belongs to the English, and is a part of the continent of Europe. The ragged, rocky mountains on our right are in Morocco, on the continent of Africa. Ahead of us is the blue Mediterranean Sea, stretching on and on for more than two thousand miles, and separating these continents.

We move slowly eastward, and then, turning north, call at the Balearic (băl-ê-ăr'ik) Islands, which belong to Spain. The archipelago consists of four principal islands and several smaller ones. The first two we pass are Formentera (fôr-mân-tă'ră) and Iviza (ê-vē'thă). They are small and low, but are covered with orchards and vineyards. Farther on are Majorca (mă-jôr'kă) and Minorca (mîn-ôr'ka), the two largest islands of the group. Both are rugged and mountainous, and both are of importance to trade, although not so much so now as in the past.

The Balearic Isles were famous in the days of old Rome. They were noted for their slingers, and one Roman general had to put skins over his boats to protect his men from missiles thrown by the natives. During the Middle Ages these islands were among the chief markets of Europe. They traded with France, Spain, Italy, and Africa; and ships from Asia, loaded with goods brought by caravans from the interior, came across the Mediterranean Sea to Majorca, and here transferred their freight to other vessels bound for the European countries near by. When the Cape of Good Hope was discovered, Asiatic products were sent south around Africa, and the islands lost this trade.



They are now chiefly dependent upon the coasts nearest them. They export oil, almonds, oranges, lemons, and capers to Marseille, and wine, pigs, and vegetables to Barcelona, also to Algiers and Italy. Majorca was once famous for its pottery; the Majol'ica vases that some of us have in our homes are an imitation of this ware.

Our first stopping place is on Majorca in the beautiful harbor of Palma, the capital of the archipelago. It is a



Fishermen of the Balearic Islands.

Spanish city of more than seventy thousand people, lying right on the sea, and extending up the hills at the back. Not far from the shore is a great cathedral built centuries ago, and on the hills above we can see windmills that remind us of Holland. Here and there palm trees wave their broad leaves over the houses, and gnarly old olive trees, gray-green in color of foliage, grow on the hillsides.

The streets are narrow, and the houses not unlike those of Madeira. The people wear quaint costumes that resemble those of the peasants of some parts of Spain. There is little bustle or noise in the streets; we could almost imagine ourselves in the Middle Ages, were it not for the moving picture houses and tennis courts we see.

We gallop out into the country on donkeys, riding along roads lined with cacti. There are many orange groves, olive orchards, and pomegranate and smooth-leaved fig trees.

Much of Majorca is kept like a garden. The soil is as rich as that of California, and single orange trees have produced more than two thousand oranges in one season. Grapes grow in such luxuriance that one bunch would furnish a lunch for a class of schoolboys. There are also apples, cherries, and peaches, and, indeed, almost every kind of fruit.

After leaving Palma, we sail on to Port Mahon in Minorca, and there take a ship for Ajaccio (ä-yät'chō), the capital of the French island of Corsica. Ajaccio is noted because it is the town in which Napoleon was born. The city has several statues to its great hero, and streets, squares, cafés, and quays are named for him.

Although Corsica belongs to France, its people look more like Italians than Frenchmen. They speak Italian, and for many centuries were governed from Italy. In 1768 the island was taken over by France, and it is now ruled as a department or province of that country.

We enjoy our walks about Ajaccio. Here is a public laundry where women may wash the family clothing by paying a few cents an hour, and there is a line full of kid-skins, which are being dried to be sent to Italy to be made into gloves. We walk along the sea wall and see fishermen

mending their nets, and we bask in the warm sunshine as we watch them. We see houses with little shrines on their outer walls. We go through streets roofed like arcades, and we meet boys and girls going to school.

We next take the train for Bastia (bäs-tē'ä), the leading city on the north coast of Corsica. How beautiful the countryside is! There are hills about Ajaccio, and back



A public laundry in Ajaccio.

of them well-wooded mountains, some of which are snow capped at this time of the year. In the valleys are crops of many kinds. There are vineyards and fine groves of olives and oranges. In one place we see many boxes of citrons ready to be shipped to New York, and we learn that practically all the citron we eat in our Christmas fruit cakes comes from here. Along the roads are donkeys pulling carts or being ridden by men or women. Some of

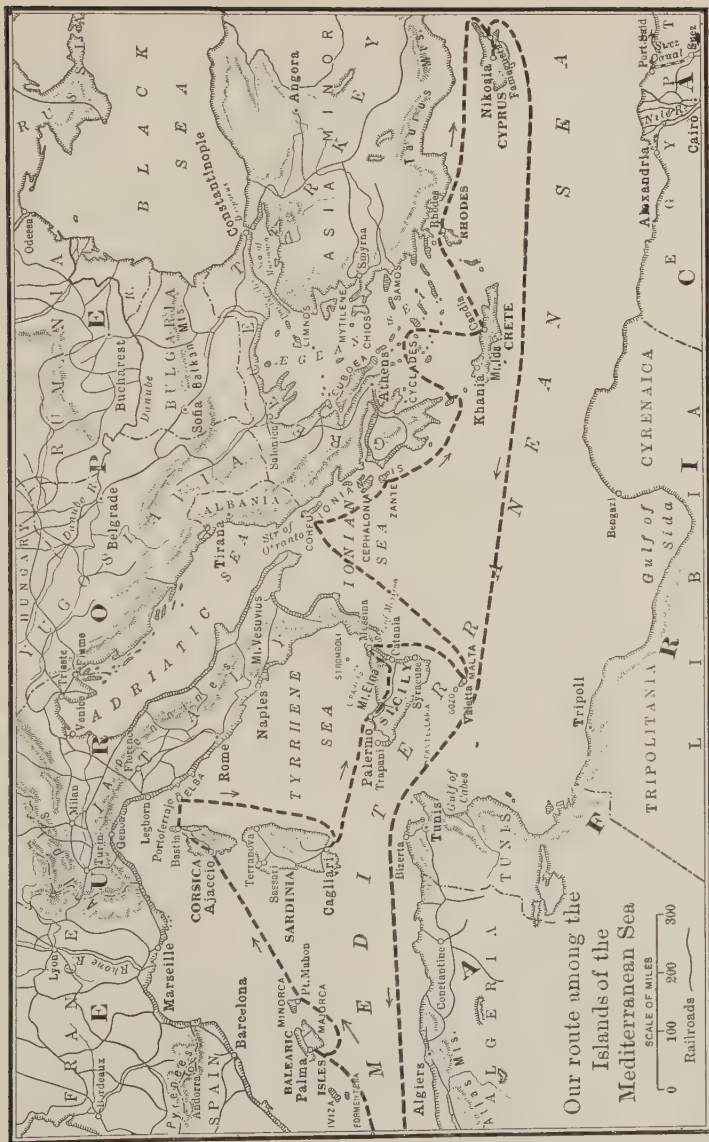
the women wear queer hats made of grass and shaped like a pancake, and others are carrying burdens on their heads. Now and then we see one kneeling before a wayside shrine. Everywhere there are women working in the fields.

At Bastia we find a steamer that takes us to the little island of Elba, where Napoleon was kept after he was first defeated by the forces of Europe. Elba now belongs to Italy, being governed as a part of the province nearest it on the mainland. It is only about as large as the District of Columbia, and it has but a few thousand people. The surface of the island is mountainous. There are extensive iron mines, the ore of which is so fine that it is exported to the United States and England for making Bessemer steel. We spend a few hours at Portoferraio (pōr'tō-fēr-rā'yō), the principal city, and then sail southward for the island of Sardin'ia.

XLVII. SARDINIA, SICILY, AND MALTA

THE two largest of the Mediterranean islands belong to Italy. They are Sardinia, which is larger than Rhode Island and Massachusetts combined, and Sicily, which is much bigger still. Sardinia is south of Corsica, and Sicily is at the toe of Italy. Both islands are rugged and mountainous, both have rich valleys and plains, and both are inhabited by people of the same race as the Italians. Sicily is the richer and more important, but Sardinia lies first on our route, and so we visit it next.

Leaving Elba, we sail southward along the east coast of Corsica, and then skirt the eastern shores of Sardinia until we reach the end of the island and enter the port of Cagliari (käl-yä'-rē), its capital.



Our route among the
Islands of the
Mediterranean Sea

SCALE OF MILES

0 100 200 300

Railroads

We are in sight of mountains all the way. They are heavily wooded and capped with fleecy white clouds. Some of the peaks are more than a mile high, and parts of the shore of Sardinia are very rugged. Our little steamer goes lazily along, and we lean over the rail, watching the land through our field glasses. We can make out the olive orchards and vineyards of the foothills, and are told that the woods higher up contain cork trees, chestnuts, oaks, and pines.

Coming into Cagliari Bay, we are in an amphitheater of which the sea is the floor, and the hills, covered with buildings forming the city, are the encircling tiers. There are many boats and ships in the harbor, for Cagliari is the center of the life and trade of the island. It is a quaint town, with narrow streets which we have to climb to get from one place to another.

We land and make our way about through the city. The sidewalks are crowded. All sorts of work goes on in the open air. Here a cobbler is mending boots right out on the street. A little farther on a tailor is sewing, and down in that valley we see a girl washing clothes. There are many peddlers showing their wares, rosy-cheeked children playing about in the dirt, and donkeys, dogs, and goats winding their way in and out through the crowd. There are street-cars and automobiles. Many of the people are dressed as we are. The better parts of the town are more open. There are many churches, and we frequently see priests and nuns in black or white gowns going from one church to another.

The island of Sardinia is well known in history. The Phœni'cians and Carthagin'ians had settlements upon it, and it was once called the granary of the Romans. To-day it is again growing in importance. Irrigation works have

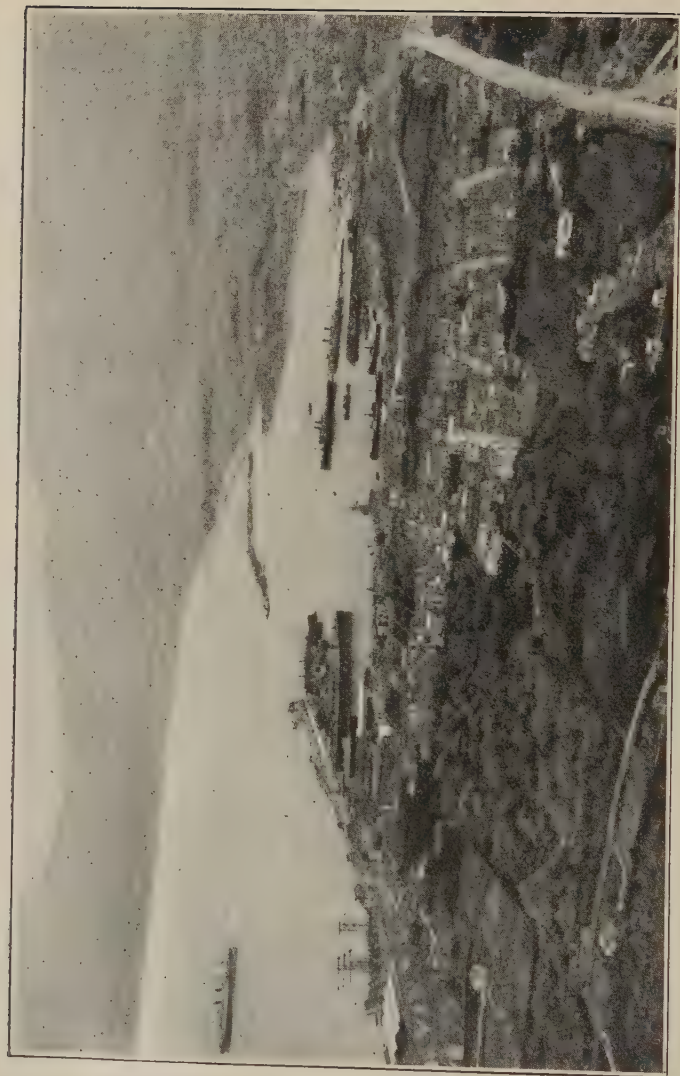
been built to reclaim the dry land, and a great dam holds back the waters of one of the rivers. Its waterfall will generate electricity to light the island.

Sicily, which we visit next, is of greater commercial importance than Sardinia. It produces about one third of the wine of Italy, half the barley, a large part of the wheat, nine tenths of the fruit, and much of the mineral output. It might be called Italy's farm and market garden, and it is so situated that it is one of the chief commercial centers of this part of the world.

It is but a short journey by sea from Cagliari to Palermo (pà-lêr'mō), the Sicilian capital. We enter a fine bay guarded by two rugged mountains, and come to anchor in front of the plain on which the city lies. The plain is called La Conca d'Oro (kõn'chä dō'rō), or the shell of gold, because of its fertile soil and its vast orchards of oranges, lemons, and other fruits.

Palermo lies right on the bay under the shadow of the mountains. It is a magnificent city, nearly as large as Washington, with wide streets and many fine buildings. It is visited every year by thousands of tourists, and we find good hotels and modern improvements everywhere. We find also many remains of the past, and visit palaces and churches built hundreds of years ago.

We spend some time in wandering about Palermo, and then take a train for other parts of the island. We visit Messina (mě-sě'nà), once a thriving seaport on the north-eastern coast just opposite Italy and near the strait through which the ships go from Genoa and Naples on their way to Egypt and the Indian Ocean. The port is still visited by many steamers, but the city itself was totally destroyed by an earthquake in 1908. Parts of it have now been rebuilt, but much of it is still a mass of ruins and lava.



A view of Palermo from the mountains beyond the city.

We stop at Catania (kä-tä'nyä) at the foot of Mount Etna and ride some distance up the mountain, although not to the top. We are now on the highest volcano in Europe. Mount Etna rises far above Vesuvius, and as we look at it, we see that it is covered with snow. The mountain is now smoking, although not in actual eruption, as it has been many times in the past. It often bursts forth, throwing out a deluge of hot lava, ashes, and rocks that covers the surrounding farms, vineyards, and villages.

Much of our time in Sicily is spent in traveling through the country. We shall be quite safe anywhere, as the island has been rid of bandits who robbed the people. The land is divided into large estates, which are rented to peasants who labor under overseers or on shares. The peasants live in villages and go out to their work. Their houses are crude, usually built of stone or brick covered with plaster. They live chiefly on wheat, dried olives, green fruits, and sour cheese, with now and then a bit of pork or goat's flesh. We see goats everywhere; in the cities they are driven from house to house and milked while the customers wait.

Do you know what sulphur is? If you do not, you can learn something about it by striking a match or by getting a bit of it at the drug store and lighting it. It is a hard, brittle, yellow substance, which gives forth a pale blue flame, the fumes of which will make you cough and almost suffocate you. It is of value in making matches, gunpowder, and medicines, and in many kinds of manufactures. Mount Etna sometimes vomits forth sulphur mixed with its lava, but the chief supplies of Sicilian sulphur come from mines far away from the volcano. It lies in veins in the earth, and is dug out by men and boys, just as our people mine coal. The sulphur is shipped to different countries; Sicily furnishes a large part of the world's supply.

A few hours' voyage by steamer from Sicily brings us to Mal'ta, a rocky little island with smaller islands about it, belonging to Great Britain. Malta itself is only nine miles wide and less than twenty miles long, but it is valuable because of its excellent harbor at Valetta (vā-lēt'tä), and because it lies almost midway between the Strait of Gibraltar and the Suez Canal. It is an important coaling port, and is the base of the British fleet in the Mediterranean Sea.

As we see the island from our steamer, it appears to be without vegetation. The harbor of Valetta is surrounded by steep walls that look like forts, and the fields outside the city are inclosed in stone walls. The hills are terraced with stones, and only where the orange, lemon, and olive trees stand out above the walls do we see patches of green. We shall find later, however, that almost every foot of ground is cultivated, and we shall see everywhere vegetables, fruit, and grain.

There are many ships at the wharves of Valetta. That ocean liner taking on coal over there is bound for Hong-kong', and the ship next to it is a British transport carrying soldiers to India. Several naval vessels are lying outside the harbor.

As we leave our ship, we make our way through a crowd of English, Italians, Turks, Greeks, and sailors from everywhere, up the steep, narrow streets to the main part of the city. The buildings are tall, many of them having balconies on which strings of drying clothes are flapping. We go along the *Strada Reale* (strä'dä rä-ä'lë), the best business street, looking at the beautiful Maltese lace in the show windows, and at the silver filigree work, which might almost be called lace in silver.

Let us take donkeys and ride out to spend a day with the peasants. They have small farms surrounded by stone

walls, which prevent the soil from washing away. They live in little houses built of stone, with flat roofs and rough doors and windows. They cook upon charcoal brasiers, and their food is scanty and plain. The peasants seldom have meat; they live mainly on brown bread, macaroni, olive oil, and goat's-milk cheese, and sometimes fish and



Our steamer in the harbor of Valetta.

fruit. The men wear trousers and shirts of coarse blue cotton, and most of them are barefooted. The women dress just as simply, having coarse dresses with hoodlike mantles that fall to the waist.

Our donkeys are excellent steeds, the air from the sea is fresh and cool, and we enjoy the ride from one little farm to another. Now we stop to eat the blood-red oranges

common to Malta, and now to drink a glass of warm milk fresh from a goat. Malta is noted for its goats. They are excellent milking animals, some giving as much as a quart daily. Every morning they are brought from the country into the towns and milked at the doors of the customers.

Here and there on our travels about the island we stop to inspect some old ruin. In past ages Malta was held at different times by the Phœnicians, the Greeks, the Carthagin'ians, the Romans, and the Arabs, and we find remains of buildings erected four thousand years before the time of Christ.

XLVIII. ISLANDS OF THE EASTERN MEDITERRANEAN

FROM Valetta we take ship for the Ionian Islands, off the western and southern coasts of Greece, calling first at Corfu (kōr-fōō'), the most important. These islands are many in number, and six of them are of some importance. They have all together an area not much larger than that of Rhode Island, and their population is little more than two hundred thousand. Only one third of the inhabitants are Greeks, the others being Jews and people from the countries about.

The skies of Corfu are wonderfully clear, the climate is delightful, and the soil is so fertile that oranges, lemons, grapes, and other kinds of fruits grow luxuriantly in the valleys. The island is mountainous, and the hills are dry and barren.

We stop next at Zante (zän'tě), farther south. Two thirds of this island is covered by vineyards, and much of it is devoted to Zante currants, which are dried and shipped

all over the world. They are sold in almost every grocery store, and we have often eaten them in cakes and plum puddings.

From Zante we move around the southern coast of Greece to the archipelago in the Ægean Sea. This archipelago consists of many small volcanic islands, of which some are little more than rocks of white marble. Some are almost barren, others have olive orchards and vineyards built in terraces on the sides of the hills. The people live in little flat-roofed houses painted white. They are mostly Greeks, or of the mixed race found in this region. Many of them are sailors and fishermen. Some of these islands have a population more or less Mohammedan, but those nearest Greece are inhabited chiefly by Christians of the Greek Catholic Church.



Women of Corfu in native costume.

Coasting southward, we call at Crete (krēt), formerly a dependency of Turkey, but now a part of Greece. Crete is a long narrow island about one hundred and sixty miles

from east to west. It has a chain of mountains running through it, Mount Ida being two thousand feet higher than Mount Washington.

The mountains of Crete have numerous caves, including one on the slope of Mount Ida in which the ancient Greeks supposed the *Min'otaur* lived. This was a terrible monster with a human body and the head of a bull, which, according to tradition, ate nothing but human flesh. Every year, so the story goes, the king of Crete compelled Athens to send seven youths and seven maidens to be fed to the monster, and this continued until a brave young prince, named Theseus, came here and fought the Minotaur and cut off its head.

We call at the town of Candia (kăn'dē-à), on the northern coast. The people are much like those we have seen in the other Grecian islands. They have oval faces, pointed chins, and dark, rosy cheeks. Many of the men wear white shirts, blue waistcoats, and long boots, with their trousers gathered in at the knees. Some have red fez caps, and others wear hoods. The chief business of Crete is farming and fruit raising, the principal products being olives, oranges, lemons, and wines.

Leaving Candia, we next call at Rhodes, a little island off the southwest coast of Asia Minor. In the past, Rhodes was a very important island. It was once a great commercial center, trading with Egypt, Asia Minor, Greece, and other parts of Europe. Its capital, the famous city of Rhodes, at its northern end, was in ancient times one of the finest cities of the world, noted for its schools and culture.

The island formerly belonged to Turkey, but since 1912 it has been under Italian control. The great city of the past has disappeared, and in its place is a town of about

thirty thousand people, made up of Greeks, Turks, Armenians, Jews, and Italians. The island is mountainous, with many well-watered valleys. It produces wine, wax, honey, lemons, oranges, and figs, and has some manufactures of silks.

Many centuries ago, on this island stood the famed Colossus of Rhodes. This was a statue as high as a country church steeple, put up to the god of the sun, in honor of the successful defense of Rhodes, about three hundred years before Christ. The people erected it at the entrance of the port, so that it was seen by ships coming in, just as the Statue of Liberty is seen in the harbor of New York. They were years in building it, and when completed it was considered one of the seven wonders of the world. It was finally destroyed by an earthquake about 224 B.C., and its fragments lay where they fell for almost one thousand years.

Cy'prus, where we stop next, is the third largest island of the Mediterranean. As we near it from Rhodes, it looks like two islands, for it has a mountain range running along its north and one along its south coast, with a plain between them. As we get nearer, the mountains seem to grow in size, and the real shape of the island becomes more apparent.

We stop at the harbor of Famagusta (fä'mä-gōōs'tä), which has been much improved in recent years. Here we take a train inland to Nikosia (nē-kō'sē-ä), the capital. We pass many little fields of wheat and barley on our way. Now and then we see a cotton plantation, and up on the hills olive orchards and vineyards. Farming is the chief business of Cyprus, although formerly much of the land was too dry to be cultivated. Now there are irrigation works to water the thirsty soil, and some of the bare land has been planted with young trees.

In ancient times the forest of Cyprus furnished timber for the ships of the Greeks, and the mines yielded copper, silver, and precious stones. Copper is still being mined here, and is exported in large quantities. Some of the other exports are asbestos, sponges, tobacco, cotton, grains, fruits, wine, cheese, and silk.

Cyprus now belongs to Great Britain, being governed by a high commissioner appointed by the King of England. The island is noted for its antiquities; many statues, vases, and other objects used ages ago have been dug out of the ground and sent to museums all over the world. The people are mainly of the Greek race, and most of them belong to the Greek Catholic Church, although a few are Mohammedans. There are many schools, including high schools, and several newspapers are published in Greek.

1. Name the islands lying in the Atlantic off the west coast of Africa. To what countries do they belong? Which ones are famous health resorts? Which is noted for its embroidery?
2. What are the chief islands of the Mediterranean? To whom do they belong? Name the three largest.
3. Where was Napoleon born? On what two islands was he imprisoned? Where did he die? Where is he now buried? (See Carpenter's New Geographical Reader "Europe.")
4. Why were the Canaries so named? In what other country are canary birds raised in large numbers? (See Carpenter's New Geographical Reader "Europe.")
5. What is the cochineal insect, and for what is it used?
6. From where does most of our citron come? Our dried currants?
7. What are the chief farm products of Sicily? What Sicilian city was destroyed by an earthquake? What volcano on Sicily? How does it compare in height with the other volcanoes of Europe?
8. On what island is sulphur found? Name another important place where sulphur is mined. (See Carpenter's New Geographical Reader "North America.")

9. Why is Malta so important?
10. Where are the Ionian Islands? Which is the most noteworthy?
11. What legendary monster was supposed to have lived on Crete? For what statue was Rhodes famed?
12. What mineral is exported by Cyprus?

XLIX. THE WEST INDIES

WE have crossed the Mediterranean Sea, have passed out through the Strait of Gibraltar, and are again steaming over the billowy Atlantic. We are on our way to the West Indies, that mighty archipelago which, beginning near Florida in North America, extends in a great curve to the mouth of the Orinoco River in South America, walling in the Caribbe'an Sea from the Atlantic Ocean and the Gulf of Mexico.

The West Indies are among the most important islands of the globe, and they are especially interesting to us because their people are our next-door neighbors. Porto Rico and the Virgin Islands belong to the United States, and we have close trade interests with Cuba, the largest and most important island of all.

Let us take a general view of the West Indies before we begin to explore them. They are divided into three principal groups: the Bahamas (bâ-hâ'mâz), off the southeast coast of Florida; the Greater Antilles (an-tîl'ēz), comprising Cuba, Jamaica, Haiti, the Dominican Republic, or Santo Domingo, and Porto Rico, with the smaller islands about them, south of the Bahamas; and the Lesser Antilles, which extend from Porto Rico to the mouth of the Orinoco River.



With the exception of the Bahamas, which are low and of coral formation, most of the West Indies are mountainous islands, some parts having active volcanoes. The Greater and Lesser Antilles are the peaks of a high mountain range, which extends far down into the bed of the ocean. The mountains are covered with forests, containing mahogany, dyewoods, and other trees. The lowlands are largely sugar and other plantations, and all the fruits of the tropics grow in profusion. The islands are so beautiful that they are often spoken of as "The Gems of the Ocean." As they are in the track of the trade winds, the highlands are delightfully cool. The archipelago has a rainy season toward the end of the summer, and a dry one from December to April. In the early fall there are frequent hurricanes.

We all know how the West Indies were discovered. The Bahamas were first seen by Columbus in 1492, and during the same year he visited also Cuba and Haiti. He had no knowledge of our great hemisphere, but supposed himself near the coast of India or some part of Asia, and therefore called the islands the West Indies. The Greater Antilles were colonized by the Spaniards, who at first claimed the whole archipelago. Spain was not able to hold the islands, however, and to-day has no possessions in the West Indies. Cuba, Haiti, and Santo Domingo are now republics; Jamaica, the Bahamas, and some of the Lesser Antilles belong to the British; and other islands are owned by the United States, France, and the Netherlands.

The West Indies are bound together by telegraph cables. Many lines of steamers also connect them with one another and with the chief ports of our Atlantic and Gulf coasts, and also with Europe. We shall have no trouble in making our way from one place to another, and shall frequently meet Americans who are doing business in the islands.

L. THE BERMUDAS AND THE BAHAMAS

WE shall begin our travels through the West Indies in the Bahamas. Before we reach that group of islands, however, we shall stop at the Bermudas (bēr-mū'dās). These are three hundred and sixty little islets, twenty of which are inhabited, but they are so small that the area of all of them together does not equal twenty square miles. They are five hundred and eighty miles off the coast of North Carolina, and less than seven hundred miles from New York. For this reason, and because of their fine climate and beautiful scenery, thousands of tourists come here every winter.

Like the Bahamas, the Bermudas belong to England, and are of great importance as a naval and coaling station. British battleships may be seen in the harbor, and there are also docks and other conveniences for the repair of the naval vessels. There is a garrison of English soldiers on the island, and many British residents. A large proportion of the total population is colored.

The Bermudas are of coral formation, but their soil is so rich and the climate so mild that all sorts of flowers grow luxuriantly. Geraniums bloom all the year round, and there are roses from Christmas to Christmas. Everywhere there are oleanders, some so tall that hedges are made of them. One of the great crops of the island is lilies, which are grown both for their bulbs and for their blossoms. At Easter time many of the flowers are shipped to New York, and later the bulbs are dug up and exported. Bermuda also sends us onions and early potatoes, and it raises other garden vegetables for its own use. We see fruits of many kinds, including bananas, melons, mangoes, papaws, citrons, figs, and alligator pears.



A field of Easter lilies in the Bermudas.

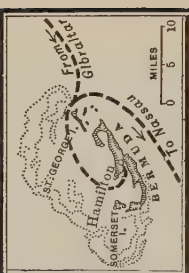
We stay a day or so at Hamilton, the capital of the Bermudas. We call upon the governor in his white mansion on a hill above the city, visit the parade grounds where the soldiers are drilling, and then ride about the island on bicycles and in carriages. It is against the law for automobiles to be used in the Bermudas, and the only motor vehicles are fire engines, street sprinklers, and the like.

From Hamilton we steam to the south, going so close to Florida that we can see the coast with our field glasses. How blue the water is, and how beautiful! Now we are approaching the Bahamas, a group of many little coral islands not far from the southeast coast of Florida. All together, they have an area about two hundred times as large as the Bermudas, but their population numbers only

SCALE OF MILES

100 200 300 400

Railroads



about fifty thousand people, the greater number of whom are colored. It was on one of the Bahamas, San Sal'vador, or Watling Island, as it is often called, that Columbus first landed when he discovered the New World. Later, these islands were a favorite haunt of pirates and buccaneers.

We pass the green island of An'dros and a little later see the palm trees of New Providence rising above the white buildings behind the harbor of Nassau. Andros is the largest of the Bahamas, but New Providence is the most important, Nassau being the capital.

We land and stroll about the town, admiring its cozy houses and beautiful gardens. Most of the people we meet are Negroes and mulattoes, although there are some whites, including many English and Americans who have come here to enjoy the climate.

We find our hotel comfortable, and after a good dinner we take motor-cars for a drive over the island. We visit the Queen's staircase, a flight of huge steps cut out of the solid rock from one of the forts down to the beach, and in the evening we take a ride on the "Lake of Fire," not far from the city. We have all seen fireflies. In this lake there are many little organisms that might be called the fireflies of the sea, for they seem to coat the water with fire. At times, when the lake is quiet, there is no light whatever; but at others, when it is ruffled, these little organisms emit light just as the "lightning bug" does, and the water seems to be flaming. As our boat moves, it leaves a trail of fire, and when a boatman dives into the water, he is apparently outlined in flames.

Much of our stay in the Bahamas is spent on the sea. The water is exceedingly clear, and boats with bottoms of plate glass have been constructed so that we can look down

from them and observe the various kinds of strange fish. We see great sponges lying here and there on the rocks. Off the Bahamas are some of the best sponge fishing grounds of the world, as much as a million pounds of sponges being gathered here in a single year. The sponges are obtained



Sorting sponges in a warehouse.

by divers, or by fishing for them with a hook attached to a pole. The fishermen have buckets with glass bottoms. By putting such a bucket into the water and looking into it, they can see clear to the bottom, no matter if the water is rough. When they spy a good sponge, they thrust down their poles, catch it with a hook, and pull it up. When the sponge first comes out, it is black and sticky.

It is left in the sun for a short time, while the softer parts decay; the skeleton is then cleaned, bleached, and dried for export. Sponges are trimmed and sorted before they are sold. They are pressed into bales and shipped to all parts of the world.

Turtles are caught along the coasts of the Bahamas, and among the easternmost islands another industry is evaporating salt from the waters of the sea. The chief crop of the islands is sisal hemp, and other important crops are pineapples, oranges, and tomatoes, which are shipped to the United States.

LI. CUBA

WE are now about to visit the largest, richest, and most valuable island of the West Indies, an island which the Spaniards called "The Pearl of the Antilles," and one so important to us that, to a certain extent, we have taken it under our protection. This is Cuba, so situated that it commands the Windward Passage, the chief entrance from the Atlantic Ocean to the Caribbean Sea, and also the two entrances to the Gulf of Mexico by the Strait of Florida and the Yucatan' Channel. If the entrances to the Gulf were shut off, it would disturb the commerce of our Southern states and of the whole Mississippi valley, and the closing of the Windward Passage would be of great damage to our trade with South America and to that which comes by way of the Panama Canal.

Cuba is so important to the United States that in our treaty relations we have provided that the island shall never make any agreement with any foreign power that might endanger its independence, that it shall not incur foreign debts beyond what its current revenues can easily pay,

and that it shall not do anything that might affect us or our trade. We have also the right to establish naval stations on the island.

Notice the shape of Cuba as it lies on the map. How long and narrow it is, and how winding its coast! If the coast line could be stretched out, it would be longer than the distance from Boston to San Francisco and back. Along every part of it there are excellent harbors, so that it is easy to export the island's products.

Now look at the map again. Cuba is like a cornucopia, or horn of plenty, and this word just describes it. It is the most fertile of all the West Indies. It has no deserts, no barren hills, and only a few large swamps. Much of it is still wild, but almost the whole island can be tilled. The eastern part is mountainous, but the mountains are green to their tops, and they have valuable forests and minerals. The middle is made up of gently sloping plains, upon which are some of the largest sugar plantations in the world, and in the west are picturesque mountains with beautiful valleys, where is produced the finest tobacco known to man.

The whole island is covered with a luxuriant vegetation. It has more than three thousand native plants and millions of acres of valuable forests. It has twenty-six varieties of palms, the finest mahogany and dyewoods, and also trees bearing tropical fruits. There are flowers everywhere; and beautiful birds, including different varieties of parrots, are found in the woods.

Cuba was discovered by Columbus only a week or two after he landed upon San Salvador, and it was settled by the Spaniards. When Columbus first came, it was inhabited by Indians, ruled by nine independent chiefs. These Indians were gentle and friendly. They had huts as well built as those of the poorer Cubans of to-day, and near

them little farms, where they cultivated cotton, pineapples, tobacco, manioc, and Indian corn. The Spaniards enslaved them and treated them so cruelly that they soon disappeared. After that, Negro slaves were imported from Africa to take the place of the Indians. Later the slaves were freed, and their descendants form a large part of the population of the island to-day.

Cuba has now more than three million people, including whites, blacks, and mulattoes. The whites are mostly the descendants of the Spaniards, and they form the ruling class, owning most of the land. They include emigrants from Spain and other parts of southern Europe, and also Americans, Germans, English, and French. The blacks are the descendants of the slaves, and the mulattoes of the negroes and whites who intermarried. There are also many Chinese, whose ancestors were brought here years ago to work on the plantations. Many of the whites are wealthy and well educated. Some are graduates of our best colleges, and others have studied in Europe. Spanish is the language used everywhere; but many of the people speak English as well, and we shall have no difficulty in making our wants known.

Cuba belonged to Spain until after the Spanish-American War of 1898. Even before that time the Cubans had been rebelling against Spain and demanding the right to form an independent republic. In 1898 our battleship *Maine* was blown up and sunk while it lay at anchor in the harbor of Havana. This act, which was believed to have been done by Spaniards, in retaliation for American friendship for the Cubans, brought on the war. At its end Spain was obliged to surrender, and lost her power over Cuba, which then declared itself a republic.

LII. THE CITY OF HAVANA

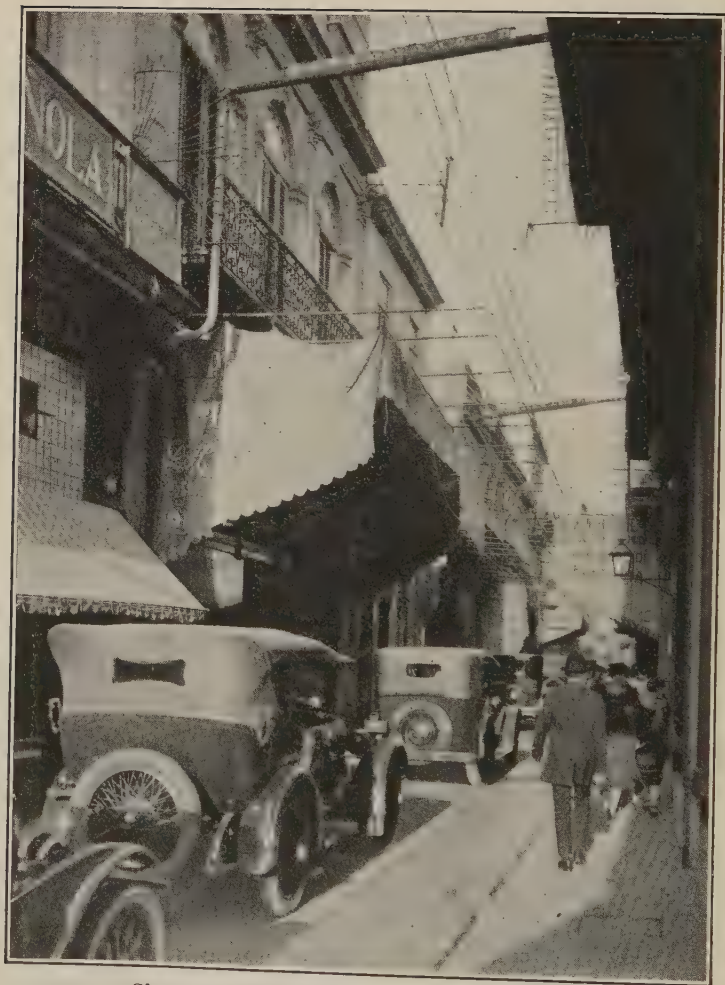
WE are in Havana, the chief city in the West Indies. It is the capital of Cuba, and is almost as large as our own capital of Washington, D. C. It is built around the Bay of Havana on the north shore of Cuba, and as we approach it, its buildings seem to rise right up out of the water.

See that gray old castle at the left of the entrance to the bay. That is the Mor'ro, a fort built by the Spaniards more than three hundred years ago. Back of it is another fortress, even larger. Just ahead of us is the bay, and as our vessel steams in we pass the spot where the *Maine* was sunk. The battleship lay there for fourteen years, when it was raised and towed out to sea. Its grave is now in the depths of the Atlantic.

The wharves where we land are in the old section of the city, and we make our way through one narrow street after another. We are jostled by peddlers, and we have to be careful not to step on the naked babies playing in the streets. There are breadmen and milkmen riding on horseback, and fruit vendors with their merchandise in little carts.

We go next into the streets where the best stores are. Here the sidewalks are often so narrow we must walk single file. In some places awnings are stretched across the entire street to keep off the hot sun. We buy some fans and lace shawls to take home to our mothers, and stop in a café to have one of the native fruit drinks for which Havana is famous.

Now we are in the *Prado* (prä'dō), the most beautiful street in Havana. It is wider than Pennsylvania Avenue



Shopping along a narrow street in Havana.

in Washington, and has a parkway extending through its center, the vehicles passing along each side. The buildings that border it are as handsome as any we have seen in our travels. There are clubs, theaters, great hotels, houses like palaces, and the magnificent mansion where the presi-



The Prado, the finest avenue in Havana.

dent lives. Motor-cars are moving back and forth out in the street, and the crowds on the sidewalks look like those in our own great cities.

Many of the hotels and office buildings are several stories high, but the homes along the Prado are of only one or two. The houses have enormous doors and windows, the windows barred with iron but often without glass panes.

They are built close to the street, and each house surrounds a court or *patio*, which contains plants and flowers and sometimes a fountain. It is in the patios or on the flat roofs that the people sit and chat in the cool of the evening. The rooms are large and the ceilings high; the floors are of marble, brick, or porcelain tiles.

Most of our walks and rides about the city are in the morning and the evening, for we adopt Cuban customs during our stay. For instance, it would be foolish to try to do business at noon, because at that time stores and offices are closed. The Cubans take only a cup of coffee, a roll, and perhaps some fruit, on rising. They do not have a substantial breakfast until about eleven o'clock, after which they enjoy a nap or a chat with their friends, not returning to work until one o'clock or later. Their dinners are served in the evening later than ours at home. After dinner they sit on their balconies or roofs, or in the patios; or they go for a walk or a ride along the Prado or the *Malecon* (mal-ě-thŏn'), a favorite drive along the sea.

We have friends in Havana who speak Spanish, English, and French, and from them we learn that many Cubans go to the United States or Europe to be educated. There are also good schools in Havana and almost everywhere throughout Cuba, most of them having been established since the Spanish-American War. Havana has colleges and a university, and it has girls' schools of all kinds.

On Sunday we attend services in the Columbus cathedral. This cathedral is so named because the bones of Columbus were once supposed to have been buried here. On another day we drive out into the suburb of Vedado (vě-dă'dō), where there are many beautiful homes like those we have in the United States. At the country club nearby we play tennis and go bathing in the surf.

Everywhere about the city we see many people from the United States. Motor cars on the streets often have licenses from home, and United States money is accepted everywhere. There are newspapers printed in English, and when



Cathedral in Havana named for Columbus.

we go in to see a moving picture, we find the titles printed in English as well as in Spanish. Indeed, Havana does everything it can to attract American visitors. The city is only a hundred miles from Key West, Florida, and only a few days by steamer from New York. Many people come here from Florida by airplane, which takes only an hour.

Before leaving Havana we visit the President and Vice President, and also the Senate and House of Representatives. Cuba is divided into six provinces or states, including the Isle of Pines, off the south coast. It is far more prosperous than it was under the Spaniards. The cities have been made clean and healthful, new railroads have been built, and thousands of acres of wild lands have been reclaimed.

LIII. TOBACCO AND SUGAR PLANTATIONS

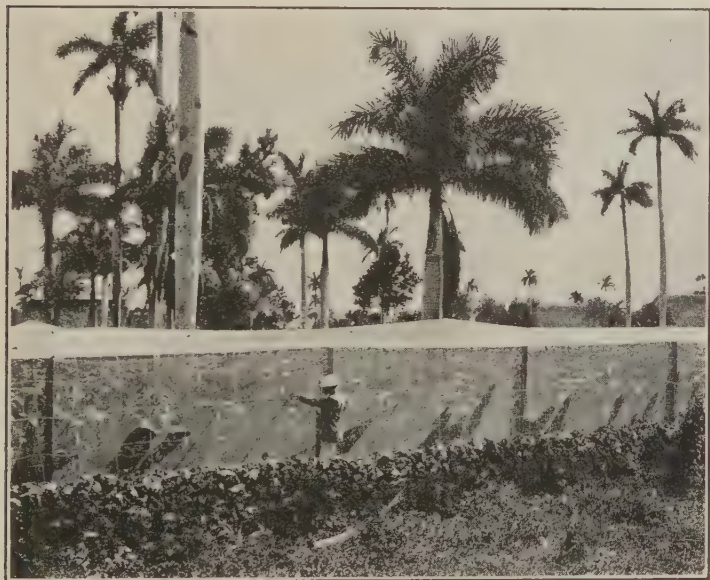
WE have left Havana and are about to visit some of the tobacco and sugar plantations of Cuba. One fourth of all the cane sugar produced in the world comes from this island, and its tobacco is of a finer quality than any other on earth.

Tobacco will thrive in any part of the island, but the best varieties are raised in the mountainous province of Pinar del Rio (pě-när' děl rē'ō), west of Havana. Here the finest quality is produced in a strip of land about eighty miles long and twenty miles wide, known as the Vuelta Abajo (vwěl'tä ä-bä'hō).

The tobacco is usually raised on small farms, for it requires great care and labor. The plants are grown in beds, from seeds so small that you could hold more than a thousand of them in one hand. The seeds are sown in September, and in six or seven weeks the plants are about eight inches high and are then set out. After this they are carefully watched and cultivated. The men examine them, leaf by leaf, for insects, and they often put cheesecloth over them to protect them from the sun and the rain. About January the plants are almost ripe. They have grown as

tall as a man, and their dark green leaves are turning yellow, "ripening" on the stalks.

The stalks are now cut and carried to the drying sheds, where they remain until properly cured. After this the



A field of tobacco protected from the hot sun.

leaves are packed up in bales and sent to the factories in Havana or in other countries.

Sugar is an even more important crop in Cuba than is tobacco, as this island produces more than any other one country. After leaving the Vuelta Abajo, we stay a while at Matan'zas and Carde'nas, important sugar ports on the north coast east of Havana, and then cross the island to the great sugar market at Cienfuegos (syĕn-fwā'gōs) on

the south. We go on eastward through the provinces of Santa Clara and Camaguey (kā-mā-gwā'), and come at last into the Orien'te, the greatest sugar-raising region of all.



A jolly tobacco picker.

Much of central and eastern Cuba is little more than a vast sugar estate divided into large and small farms. On every road in these districts we meet trucks and teams of oxen drawing loads of cane to the railway, and at nearly every station we see long trains filled with their loads of sweetness, ready to take them to the mills. There are thousands of colored people at work. In some places we see them plowing the fields with machine plows, and in others the same work is done by oxen, which pull the plows along by yokes attached to their horns.

After the ground has been prepared, pieces of ripe cane are laid in little trenches dug in it and covered with soil. In about three weeks the first sprouts come up, and in eighteen months the stalks, which look something like corn

stalks, are ready for cutting. This is done by hand, and goes on from December until June. A field has to be replanted about every five years.

At the mills the sweet juice is crushed from the cane and boiled down into sugar. It is at first brown and coarse,



Oxen hauling sugar cane to the mill.

and is usually shipped away in this form. Cuba produces enough each year to give four pounds to every man, woman, and child in the world, and nearly all of it goes to the refining mills of the United States. This is one of the reasons why our trade relations with Cuba are so important.

Many of the sugar plantations are owned by wealthy

men. Such estates have their own mills and railway lines. They own thousands of oxen, horses, and mules, and employ so many workers that each estate is a community in itself. We see many women among the workers, planting, hoeing, and cutting the cane. The overseers tell us they work quite as well as the men. Some plantations have nurseries, where the babies and little children are watched over by the old women while their mothers are at work in the fields.

LIV. IN EASTERN CUBA

OUR travels through Cuba are by motor car and by railway. We can take trains almost to the very eastern tip of the island, and there are good roads around all the big cities. We meet automobiles and trucks, also donkey carts and donkey caravans, each animal loaded with produce being taken to market.

What a beautiful island this is, and how rich the soil! Outside Havana we pass acres of pineapples. We ride through orchards of banana trees loaded with fruit, and everywhere we go there are great palms standing out alone on the landscape, or forming the avenues to some rich planter's home. Cuba has twenty-six varieties of palm trees, including the royal palm, the most beautiful known to man, and the coconut palm, whose green nuts give us a drink every time we ride through the country.

In the center of the island are great forests, containing mahogany, ebony, rosewood, cedar, and many other valuable trees. See how they are matted together with vines! We pass saw-mills and newly cleared land, where crops are sprouting up between the tree stumps.

We spend a day or two in Camaguey, a quaint old city



A long avenue of stately royal palms.

in the interior. We stay in a large hotel that once was a barracks for Spanish soldiers. It covers as much ground as a city block, and has several beautiful patios. The houses are of every bright color, and above them rise many church towers. The streets are crooked and winding, and we have much fun exploring them.

The plains about Camaguey furnish good pastures, and as we leave the city we pass herd after herd of cattle. We ride through more forests, and then come again into a region of sugar and fruit plantations. This is about Nipe (nē'pā)

Bay, on the north coast near the eastern end of the island. Here vast areas have been cleared of the jungle and turned into farms. There are orange and grapefruit groves, sugar, pineapple, banana, and cacao plantations, orchards of coffee



Milk peddlers in Camaguey.

trees, great fields of tobacco, cattle ranches, and truck farms. Not far away are iron and copper mines.

From Nipe Bay we cross the island to Santiago de Cuba (sān-tē-ä'gō), on the south coast. Santiago was once the capital of Cuba and is still the most important city in the eastern part of the island. Most of its buildings are small and of the Spanish style. They are usually of one or two

stories, built close to the street, and with walls painted in colors even brighter than those of Camaguey. Our hotel and several other new structures are larger and more like those we saw in Havana. Many of the buildings have large windows, with iron bars and heavy barred doors.

Like Havana, Santiago has a Morro Castle overlooking its harbor. In this harbor the Spanish fleet hid during the Spanish-American War, and in its entrance Lieutenant Hobson of the United States navy sank the *Merrimac*, trying to block the channel.

There are many other places near Santiago connected with that war. One day we drive out to visit the battlefields of San Juan (sǎn hwän'), where some of the hardest fighting took place. How peaceful it all looks now! We visit the tree under which the commander of the Spanish soldiers in that battle surrendered to our General Shafter, and we stop for a moment at the San Juan monument.

Before leaving Cuba, we spend a few hours on soil that belongs to the United States. This is at our naval station on Guantanamo (gwän-tä-nä'mō) Bay, about fifty miles east of Santiago. Here is a harbor big enough to hold all our battleships at once, if necessary. It is just about half way between New York and Panama, and is important as a coaling station. Nearly every year scores of United States naval vessels, submarines, and airplanes gather here for several weeks to engage in war maneuvers.

1. Into what three groups are the West Indies divided? Name the largest islands. Which are independent republics?

2. By what nation were the West Indies first discovered and colonized?

3. Where are the Bermudas and the Bahamas, and to what country do they belong? What products do the Bermudas ship to the United States? What important article is found in the sea near the Bahamas?

4. What is the largest and most important island of the West Indies? What is its capital? What important event in the Spanish-American War took place there?

5. What is the chief sugar producing country in the world? Where does most of its product go? What other islands that we have visited produce large amounts of sugar? Compare their outputs. (See table.) On the map trace a shipload of sugar from each one to New York City.

6. How does the tobacco raised in Cuba compare in quality with that from other countries? In quantity? (See tables.) What other crops and fruits are grown in this island?

7. Name the chief city of eastern Cuba. How is it associated with the Spanish-American War?

8. What naval station does the United States have in Cuba?

LV. JAMAICA

TO-day we are in Jamaica. The island was discovered by Columbus about two years after he had first set foot in the West Indies. It was settled by the Spaniards, who held it for about a century and a half, when the British took possession of it. The Spaniards had oppressed the Indians Columbus found here until they all died off, and at the time the British came the island was almost deserted.

The British set out sugar plantations, importing Negro slaves by thousands to work them. When the slave trade was finally abolished about a hundred years ago, there were more than three hundred thousand slaves here. To-day there are almost a million people in Jamaica, and most of these are Negroes or mulattoes. There are fourteen thousand whites and about eighteen thousand East Indians, who have been brought in to work on the plantations.

Let us take a look at the map and see what a valuable position Jamaica has in the Caribbean Sea. It is just south

of the Windward Passage. It has excellent harbors, and it is so situated that vessels entering or leaving the Caribbean can stop here for coal and supplies. The principal harbor of Jamaica is at Kingston, the capital, where we now are. The water here is deep enough for the largest ocean steamers.

Jamaica is the largest of the British possessions in the West Indies. The island has great natural resources. It is mountainous, but the vegetation extends to the highest peaks, and there are many rich valleys and coastal plains devoted to sugar. Fine coffee is raised on the highlands, and tropical fruits and coconuts are found almost everywhere. Fruit pays better than anything else, bananas, oranges, and pineapples being exported to the United States.

Jamaica has orchards of cacao, nutmeg, cinnamon, and allspice trees. The allspice is an evergreen tree, which grows to a height of thirty feet. It has berries about the size of a pea, each of which contains two round, dark brown seeds that taste like nutmeg, cinnamon, and cloves ground up together. The berries are picked green and dried in the sun, after which they look like black pepper. They are valuable for flavoring pickles, pastry, and cake.

Another export is ginger. This plant is grown in small patches. The roots are broken up and set out much like potatoes. They sprout rapidly, sending out stalks covered with leaves. When the stalks are withered, the new roots are full grown and ready for digging. They are taken out, cleaned, and scalded in boiling water. After this they are spread out in the sun to dry, and then packed for export to our country and Europe. Ginger is valuable for medicine, for making preserves and ginger ale, and for flavoring the gingerbread and cookies we all like so much.

We enjoy our travels in Jamaica. We spend one day in Kingston, taking a motor-car and driving about the town. This city was totally destroyed by an earthquake in 1907, less than a year after the great San Francisco earthquake. The earth shook for a week, and at the end of that time only a few buildings were left standing. Fires had broken out, and more than a thousand people had been killed.



A new building in Kingston, erected since the earthquake.

Most of Kingston has now been rebuilt. The main streets are wider and cleaner than before the earthquake, and handsome buildings have been put up. Nevertheless, we see many vacant lots in our trip through the city.

Like all English islands, Jamaica is well governed, and its larger cities have modern improvements. Kingston has telephones, electric lights, and street cars, and it is connected with all parts of the island by telegraph and telephones. Jamaica has good schools, good roads, and railways running from Kingston to the north coast.

To see the country best and stop where we like, we decide to cross Jamaica by motor-car. We leave Kingston and ride through sugar plantations, pass many small farms including fields of bananas and coffee, and then ascend the hills into the Blue Mountains. The higher summits of this range are always veiled in clouds. We climb mountain after mountain, now descending into a beautiful valley, and now crossing a foaming stream.

The views are magnificent. From the highest places we can see the Caribbean Sea far below us, with the ocean steamers going in and out of Kingston, looking no larger than canoes. The buildings of Kingston now seem like toys, and the little farm huts are mere dots on the landscape.

The vegetation changes as we go upward. In the lowlands are groves of coconut palms; higher up, there are forests, with many orchids and long hanging creepers; and on the mountain tops are fern beds and groves of tree ferns. At this altitude most mountains are barren, but here the moisture is so great that everything is the greenest of green. In some places we are surprised to find patches of strawberries, potatoes, and other crops of the temperate zone. At Castleton Gardens we visit a government farm and botanical garden on which are raised nearly every kind of plant, flower, or tree found in Jamaica.

Now we have descended the mountains and are again in the lowlands. We stop at a cabin with a thatched roof, and talk with the people. They are Negroes, as jolly and good-natured as our Negroes at home, but their speech sounds strange. Every one speaks English in Jamaica, but the Negro dialect is so different that sometimes we can hardly understand it. The children chatter to us and ask us many questions; as we drive along the roads they shout jolly greetings.

There are many women at work in the fields, and in some places we observe them breaking stones on the road. They cut sugar cane, hoe corn, and carry great bundles. Some bring fruit and vegetables into Kingston on their heads, and others drive little donkeys.

We end our trip across the island at Port Antonio on the north coast. The most valuable crop in Jamaica is bananas, and Port Antonio is the chief banana port. An American fruit company has vast plantations near by, and has its own steamers to take the bananas to the United States. The huge bunches of ripening fruit are



Negro women carrying bananas aboard ship.



Along the roads, they greet us with broad grins.

carried on board on the turbanned heads of stalwart Negro women dressed in bright colored calicoes.

We spend a few hours in Port Antonio, watching the ships being loaded and driving about the town, and then return to Kingston to catch a steamer for Haiti.

LVI. HAITI AND THE DOMINICAN REPUBLIC

A DAY after leaving Jamaica we are in Port au Prince (pör'-tō prāns'), the capital of Haiti. This country occupies the western part of the island of Haiti. In the eastern part is the Dominican Republic. Both of these countries are republics, and the population of both of them is composed almost entirely of Negroes and mulattoes.

As we near Haiti, we see a huge mass of mountains rising steeply from the water and jumbled together in all sorts of shapes. One of the early explorers on his return to Spain was asked by the king what Haiti was like. In reply he took a sheet of paper, crushed it up in his hands until it was a mass of wrinkles, and then threw it down upon the table.

"Haiti is like that, your Majesty," said he, "all mountains and valleys."

And so it is. The mountains run in four ranges from west to east, with valleys and plains between them. They are heavily wooded, with dense thickets of ferns on the summits. The rainfall is heaviest on the mountain tops, for there the air is coldest and it wrings the most water from the trade winds. These winds blow against the northern side of the island, and therefore that side has plenty of rain. On the south side the lower slopes have not quite enough. There are many rivers, however, and on the whole the island is fairly well watered.

Haiti is naturally rich. Sugar cane grows on it as well as anywhere in the West Indies; and coffee, tobacco, and cacao thrive on the slopes of the mountains. Its forests are especially fine, including mahogany, cedar, and dye-woods; and there are rich deposits of iron, copper, and gold. All tropical fruits grow here, and the country might be a great garden if its people were more industrious. Considering its natural resources, we expect to find that the natives are exceedingly prosperous. Until a few years ago, they were just the reverse. Let us examine their history and see if we can tell why.

Haiti was one of the first islands discovered by Columbus, and the very first to be colonized. When Columbus landed upon it in 1492, he described it as being like the most beautiful provinces of Spain and the Indians as excellent people.

The next year some Spanish settlers came to the island and founded a colony. They at once began to oppress the natives and to enslave them. They forced them to work in the mines and on the plantations; and when the Indians objected, they beat them or killed them. Columbus estimated that there were a million natives in Haiti at the

time of his landing, but the Spaniards treated them so badly that within less than fifty years they had all disappeared. After that Haiti was almost deserted. The plantations, which had been cultivated by the Indian slaves, were neglected, and the cattle, hogs, and dogs ran wild.

A little later the buccaneers, some bands of French pirates who had settled on the island of Tortu'ga, off the western end of Haiti, gradually came across and took possession of that part of the country, importing Negro slaves to work their plantations. This was done also by the Spaniards in other parts of the island, and within a few years most of the population was Negro.

Through these buccaneers the western part of Haiti became a French possession, and when, in the later part of the eighteenth century, the French people overthrew their kings in the great revolution, and established a republic, they declared that the slaves of Haiti should be free.

The French republic of that time was overthrown by Napoleon Bonaparte, who made himself emperor. Napoleon did not believe in freedom, and he ordered the Negroes of Haiti brought back into slavery. They refused to submit, and fought for their liberty. They were successful and finally established a Negro republic, with Negro officials, and with laws prohibiting any white man from owning land.

This was early in the last century, when the United States was still a young nation. Since that time Haiti has had frequent changes of government. It had Negro emperors, kings, and presidents, but no white rulers. It had many revolutions. At last conditions became so bad that, to protect American interests, United States marines were stationed here. That was in 1915, and since then

Haiti has shown great progress. Under the direction of the Americans, the people have become more prosperous, robbery has been put down in the country districts, the island has been made more healthful, telegraph and telephone lines have been extended, and good roads built.

Port au Prince now has paved streets, a sewerage system, and a street-car line. The streets have been widened, and many new buildings have been put up. On a hill on the edge of the city are villas with palms and other trees about them. Here, too, are the chief hotels. The city has more than one hundred thousand people, and we can see from the ships in the harbor that it has considerable trade. Haiti exports a great deal of coffee, sugar, cotton, and timber. It produces everything raised in the tropics, and also some fruits of the temperate zone, such as peaches, strawberries, and blackberries.

As we go through the streets we meet but few whites, except the officers and soldiers of the American Marine Corps and their families. The chief merchants, lawyers, and doctors are colored. There are colored policemen, colored soldiers, and colored customs officials, all dressed in gay uniforms. The republic has more than two million inhabitants, and of these all except three or four thousand are of African descent.

How well dressed some of the colored people are! The men are straight, tall, and well formed. They are polite, and we are surprised to observe that most of them speak only French. They speak it well, too. Many children of the better classes are sent to Paris to be educated, and French is the language of the schools. It is used also in the government offices and in the stores. The poorer people speak a mixture of French and the native language.

We take motor-cars for a drive out into the country.

We go by many small farms, and now and then stop at a large estate owned by a Negro. Along the road are cabins or shacks of boards or poles plastered with mud. The ceilings are usually of thatch, and when a man can afford a corrugated iron roof he feels quite rich. See those women



A Haitian woman going to market in Port au Prince.

bringing produce to market! They sit astride small donkeys, each of which has baskets of fruit or vegetables slung across its back.

Farther in the interior the people are ignorant and superstitious, and in the mountains away from the roads some are almost as barbarous as the savages of Central Africa.

They believe in witches and spirits, and it is said that they once had human sacrifices.

Our motor trip through Haiti brings us to Cape Haitien (hā'tī-ěň), a port on the north coast. From here there is a good road extending eastward into the Domin'ican Republic, and we decide to follow it. We stay overnight in Cape Haitien, and start out early the next morning. After a few hours' drive we have left Haiti behind us.

The Dominican Republic is about half as large as Indiana, and nearly twice the size of Haiti. The country looks like that we have just left, and it has even higher mountains. One of its peaks is the loftiest in all the West Indies.

We spend the second night of our ride in Santiago, and then turn south to Santo Domingo (săn'tō dō-mňj'gō), the capital. As we drive along we pass fields of cacao, tobacco, and coffee. In the lowlands are sugar plantations. All of these products are exported. The Dominican Republic produces also most of the fruits and vegetables we have seen in the other islands of the West Indies. There are vast pasture lands on which cattle and goats are grazing, and there are mineral deposits, including gold, iron, coal, copper, petroleum, and salt. Gold was first found here by white men soon after Columbus landed.

We find the people more prosperous than in Haiti. The country homes are larger and better, and we see more modern farm tools being used. The population here is not so dense as in Haiti, and there are many more pure whites than in the western part of the island. In Haiti the national language is French, but here it is Spanish.

For a time this part of the island was part of the republic of Haiti, but in 1844 it became independent. As in Haiti, our soldiers had to be landed here at one time to preserve order, and for many years the country was managed by

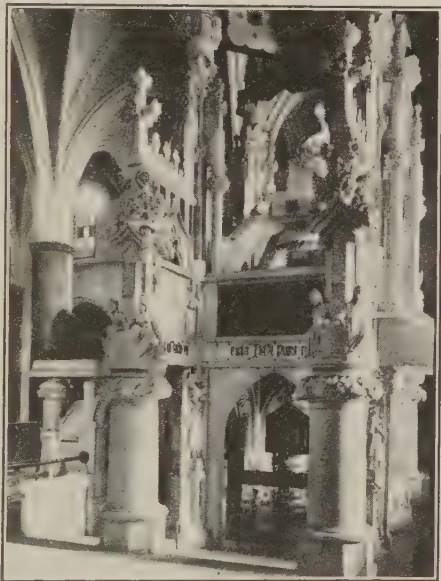
United States marine officers. The condition of the republic has been much improved, and the military government has been replaced by a native president and vice president.

We learn that the Americans did a great deal for the republic while they were here. There are now ten times as many country schools as there were formerly, good roads have been built, and the harbors have been improved.

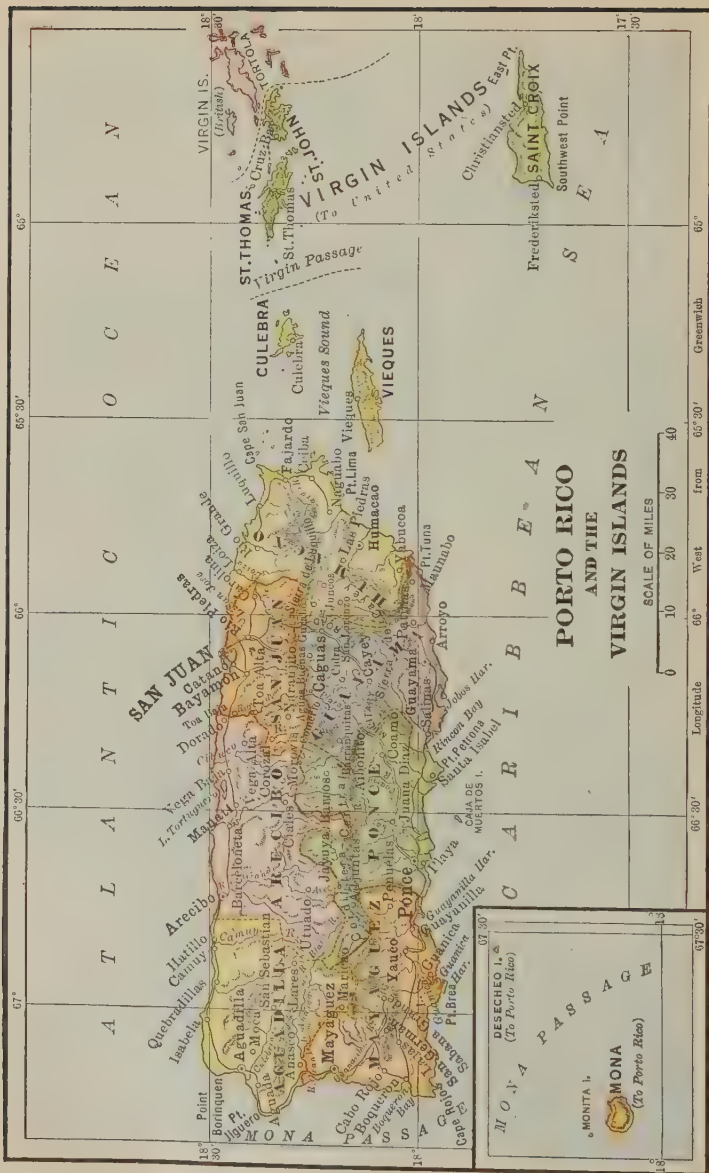
But here we are in Santo Domingo city. It is the oldest settlement in the western hemisphere, having been founded by Columbus's brother only four years after the New World was discovered. The fort we see towering over the city was built by Columbus's son,

Diego (dē-ā'gō), and is older than the Morro in Havana.

Santo Domingo has many associations with the life of Columbus. First, it was his headquarters in the West Indies while he made expeditions among the other islands. Later he was wrongly accused by his enemies and put in prison here, and it is in the Santo Domingo cathedral that he is supposed to be buried.



Tomb of Columbus at Santo Domingo.



Suppose we visit this cathedral and see for ourselves the tomb of the great discoverer. As we have learned in history, Columbus died in Spain and was first buried there. Then his remains were brought here, together with those of his son, Diego. Two hundred years afterward, when Santo Domingo was taken by the French for a time, the coffin of Columbus was removed to Havana and put in the cathedral there. Later, it was claimed that the wrong coffin had been moved, and that the real remains of Columbus are still here in Santo Domingo. They now lie in a mausoleum of marble and bronze.

What a quaint old city this capital is! It is enclosed in a great wall, now broken down in many places, and it contains hundreds of old ruins. It was once captured by Sir Francis Drake, the famous English navigator, who burned part of it to the ground. To-day some of the ruins he left stand side by side with the new buildings. As we walk along, we pass stores, moving picture theaters, and newspaper offices. In the afternoons a band plays in the plaza.

Notice the people in the streets. Many of them are dressed as we are. Others are dark-skinned, with Negro or Indian features. They are barefooted and ragged and lazy, but they seem to be happy and contented.

LVII. PORTO RICO

WE are starting out this morning on a motor trip across Porto Rico, Uncle Sam's chief possession in the West Indies. It is forty-five miles east of Santo Domingo, which we have just visited, and less than that distance west of the Virgin Islands, which also belong to the United States.



Away we go, on the motor road across Porto Rico

Before we begin our trip across the island, let us learn something about it. Let us imagine we are in an airplane high above it, and can see all of it at once. It is shaped like a rectangle. Except for a fringe of low land bordering the coast, it is all mountains and valleys. The highest mountain range extends through the center of the island from west to east. See how it branches out near the eastern end in two spurs. It looks like a pitchfork with two great tines and a long handle.

Porto Rico would look large to us from our airplane. It is not so in comparison with many of our states. You could put twenty such islands into Missouri, and it would not even cover little Connecticut. If the island were level, we could walk from one end of it to the other in three days, and we could cross it in one.

How thickly Porto Rico is settled! We can see houses everywhere through our field glasses. There are villages along the coast and in the valleys. Huts show among the trees on the tops of the mountains. There are but few large cities. The most important are San Juan, the capital, on the north coast, and Mayaguez (mä'yä-gwäs') and Ponce (pōn'sā) on the west and south. The island contains more than a million people, the greater number of whom are white, of Spanish descent.

Our journey across Porto Rico begins at Ponce on the south coast, the second largest city on the island. We shall follow the famous military road built by the Spaniards when they owned Porto Rico. This road is eighty-four miles long, winding its way across the mountains from here to San Juan. Since we took over the island, roads like it have been built everywhere, and we can go to almost any part of Porto Rico in our motor-cars.

Leaving Ponce, we make our way through the low coast

lands, passing vast sugar plantations. The black earth is covered with a rich growth of pale green cane, above which the black smokestacks of the sugar mills stand out against the sky. Sugar is the chief product of Porto Rico, and the plantations cover one tenth of the total area of the island. Most of the plantations are large, like those of Cuba.

Now we are in the foothills. How dry the mountains look in the distance! We learn that the southern slopes of Porto Rico are often arid because the water-laden winds from the Atlantic lose their moisture in passing over the highest mountains. The government has now constructed dams to hold back the rivers and irrigate this land. The water is used first to generate electricity for lighting the near-by towns, and then it flows into the irrigation canals of the plantations.

We ascend the mountains until we reach Aibonito (ī-bō-nē'tō), a little city in the pass through the range that divides the island. We are now more than a half mile above the sea level, and are in one of the most picturesque regions about the Caribbean. On all sides, as far as we can see, are billowy mountains. Below us the road winds down toward the coast in great loops and curves.

Another little city near the divide is Cayey (kī-ā'). Here we are in the center of the tobacco lands of Porto Rico. The dark green plants cover the mountains almost to their summits. See those white patches that look like circus tents. Those are fields under cover. We have already seen tobacco grown this way in Cuba.

Descending the mountains, we wind among hills covered with grass, on which cattle are browsing. Now we go past fields fenced with barbed wire, now past tracts of land surrounded by hedges of wild pineapples. Sometimes we pass through forests. The trees are those of the tropics,

with long green vines or silver-gray moss hanging down from the branches. Some have orchids clinging to them; others have masses of red, yellow, or purple blossoms, making them look like enormous bouquets; still others are covered



Sorting grapefruit for shipment to the United States.

with balls of white wool. The latter are cotton trees, the cotton bursting forth from the bolls just as it does in the plants of our Southern states. There are ferns of every description, from the exquisite maidenhair, close to the ground, to the fern tree, as high as a two-storied house, with enormous branches as fine as the most delicate lace.

Notice those fields of banana plants over there. They have leaves of soft green a foot wide and as long as a man. What a lot of palms there are, and how many varieties! The tallest are the royal palms. Along the coast are many coconut palms. The coconuts they bear are exported, as are also oranges, pineapples, and grapefruit. Another important crop is coffee.

As we go on down the mountains we pass through many little cities and towns, each surrounding a plaza on which face the church and the principal buildings. The homes of the more prosperous people are built of stucco or wood, and those of the poorer classes of palm boards and leaves. The country houses are made of poles tied together and are thatched with palm leaves. Let us stop at this one and talk with the people. The floor is on stilts, and the pigs and chickens stay underneath. There is no furniture. The people sleep on the floor, or in hammocks or on cots. Their cooking is done in an iron pot set up on a few stones over burning charcoal. The family clothing is washed in the nearest river or creek. We cross many mountain streams in which barelegged women are sitting in the water and pounding the dirt from the garments.

The farm workers in the highlands of Porto Rico are known as *jibaros* (hě'vā-rōz). Although they are dark skinned, they are usually of pure white descent, or of a mixture of white and Indian. Both men and women dress in cottons, and all go barefooted. Some of the women we see have naked babies in their arms, and even older children wear very little clothing. The *jibaros* live on bananas and sweet potatoes, together with salted codfish imported from North America. Few of them are able to keep a cow, and if the children have milk to drink, it is from goats.

As we near San Juan, there is more and more traffic on

the road. Automobiles, trucks, and busses dash along in both directions. There are natives on foot, slow-moving ox-carts, horse-drawn carriages, and pack ponies carrying merchandise in panniers slung over their backs. Many of them are ridden by charcoal vendors, who are bringing



Washing clothes in a mountain stream, stones serving as washboards.

this fuel down from the hills. See that man leading a mule laden with two huge baskets of oranges. We stop and buy some, and as we go on, eat them in native Porto Rican style. This means removing the peel, cutting a piece from the top, and then sucking out the juice. Oranges are much liked by these people, and at the railway stations and street corners are often sold already peeled.



The harbor of San Juan, gay with throngs of visitors.

LVIII. IN SAN JUAN

SAN JUAN, the capital of Porto Rico, lies on a little island off the northern coast. It is connected with the mainland by bridges, and we enter the city by way of one of them. The oldest section is enclosed by a great wall, in some places nearly a hundred feet high.

Now we are in the chief business district. The streets are paved and well kept. This little square is the *Plaza Principal* (plä'zä prĭn-thē-päl'), and those handsome structures about it are government and business buildings. We see apartment houses, modern office buildings, and handsome stores.



A business street in San Juan.

Let us stop in some of the stores. The best ones carry American goods, and the clerks speak English. We buy some beautiful laces and drawn work, which remind us somewhat of the needlework of the Filipinos. There are many buyers, and the stores are crowded all day long, except between the hours of twelve and two, when most of the inhabitants of San Juan take their midday nap.

In the older sections of the city, the stores are much smaller, and we can stand in the street and bargain with

the merchants. There are many peddlers. Here comes a man with a round bushel basket slung upon his back. It is filled with eggs packed in dried leaves. Other street peddlers are selling candy, ice cream, and fruit, especially oranges peeled in the Porto Rican style. Some of them carry their wares on their shoulders; others push hand carts, weaving their way in and out among the carriages, bicycles, motor cars, and busses.

What a host of busses! We met them on the road, dashing about the curves at top speed, and here they seem to go almost as fast. Each one has painted on its side a fanciful name. They make a great noise, for the drivers seem to delight in blowing their horns as often as they can.

Walking along the streets, we meet well-dressed men, women, and school children, laborers in cotton garments, and now and then a Negro or mulatto. The boys and girls are dressed as we are, and most of the girls now have bobbed hair.

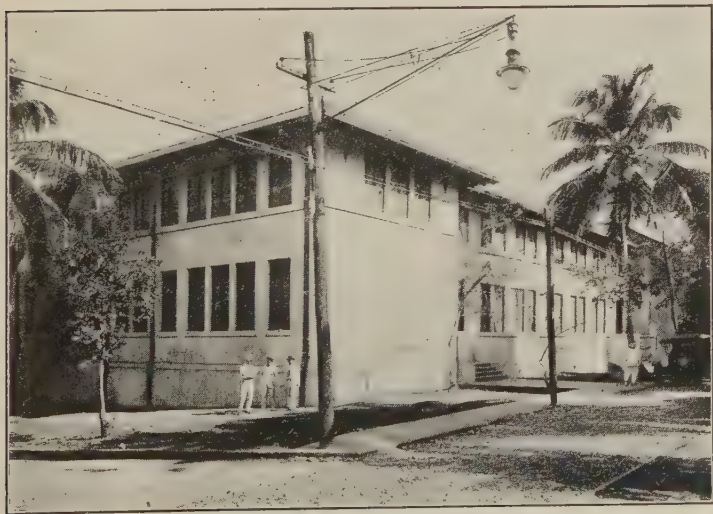
The old buildings of San Juan are of one or two stories, with overhanging balconies jutting out above the sidewalks. On some streets the upper floors are occupied by the rich, and the ground floor by the poor. In the poorest section we find families of six, ten, fifteen, and sometimes twenty people living in one room. They sleep on the floor or on cots, which are taken down during the day. These rooms are so small that the people do their cooking and washing outside in common courts.

Do not think that all the residents of San Juan are poor! This city is prosperous, and there are thousands of rich or well-to-do people. Some of them live in homes like those we saw in Havana, with flat roofs, grilled windows, huge doors, and open patios. Out in the suburbs are many pretty homes of the bungalow type. If it were not for

the tropical gardens about them, we might think we were in a city in the United States.

We visit the new white marble capitol building, and we call upon the governor, who is an American. He occupies an old Spanish palace overlooking the harbor. From its windows we can see another old Spanish building. This is the *Casa Blanca* (că'să blăn'că), or "White House," which was built by Juan Ponce de Leon (pöns dē lē'on) two and a half centuries before our White House at Washington was begun.

Porto Rico belonged to Spain until the end of the Spanish-American War. Cuba obtained her freedom during that war, and the Philippines and Porto Rico were taken over by the United States. To-day the Porto Ricans are citizens of our country. Like the Hawaiians, they have a



A fine modern school in Porto Rico.

governor appointed by the President, and they have also their own legislature, which, together with an executive council, makes the laws. Under American government

the people have improved greatly in prosperity, education, and health.

Before the Spanish-American War there was only one public school building in Porto Rico. To-day there are fine schools all over the island. On our trip over the military road we saw boys and girls going to school, and we passed schoolhouses over which floated the Stars and Stripes. All together, Porto Rico now has about



A Porto Rican girl making lace.

twenty-five hundred schools, and is building more each year.

Here in San Juan, the finest buildings in the city are the schoolhouses. Let us visit one. It is well-built and handsome, with large playgrounds, and at recess we join the boys and girls at their play. This school has a baseball team and a band, and a garden where the pupils raise vegetables. The boys are taught mechanical drawing, wood-

working, plumbing, printing, and other trades, and the girls learn to cook and sew, to take care of babies, and to make hats and lace. The hats look like Panamas, and are sent to the United States for sale.

Before leaving San Juan, we learn something of the little islands about Porto Rico that are governed from here. The chief islets are Vieques (vē-ā'kās) and Culebra (kōō-lā'-brä), which lie off the east coast, the Caja de Muertos (cä'yä dē mwēr'tōs), or "Chest of the Dead," off the south coast, and Mona Island, near the west coast. The two last named have valuable phosphate deposits. Vieques is about twenty-one miles long and six miles wide, and has about ten thousand people, who grow sugar and rear cattle. Culebra is noted for its good harbor.

LIX. THE VIRGIN ISLANDS

TO-DAY we are in the Virgin Islands, which the United States purchased from Denmark in 1916. We have landed at St. Thomas, the capital, and climbed up to Blackbeard's Castle, a tall round stone tower on the summit of a hill at the eastern end of the city. What a magnificent view we have from here! At our right and at our left are other hills rising from the waterfront, behind us is a ridge of mountains, and below lie the harbor and the city.

Most of the buildings of St. Thomas are white and have red roofs, but there are also many tinted in the brightest of rainbow hues. Down on the waterfront is an old Danish fortress, which is now the jail and police station. From here it looks like a splash of bright crimson.

St. Thomas is built on four hills. The central portion is grouped about Government Hill. There are the gover-

nor's residence, the government offices, and the best homes of the city. Most of the houses are of brick or stone. They have wide verandas overlooking tropical gardens of palms, shrubs, and brilliant flowers.

On Government Hill is also a castle that is supposed to have been once the residence of Edward Teach, a famous pirate of the seventeenth century. He had a long coal-black beard that covered most of his face, and because of it he was known as Blackbeard.

The hills of St. Thomas are so steep that many of the streets leading down to the waterfront are nothing but flights of stone steps. The only level street is along the harbor. Here, behind rows of coconut palms, we find the best hotel and the principal shops and stores. They are small one-story buildings, with no show windows.

Let us stroll along this street and watch the people. Now and then we pass a man or a woman from the United States, and frequently we meet United States marines in uniform. However, the Negroes and mulattoes outnumber the whites more than ten to one. The colored men wear cotton shirts and trousers, and the native women wear cotton dresses and turbans. The majority of the people are barefooted.

Occasionally we meet an automobile or a carriage, but most of the traffic is on foot. Here is a tiny donkey with a little barelegged black boy astride his back, and across the street is another drawing a two-wheeled cart. Everywhere are Negro men and women, boys and girls, with burdens on their heads. Look at that child of eight with a huge tin bucket resting on her woolly pate! And see that little boy carrying a huge jar in the same manner. Here comes a laundress with a great basket of washed clothes balanced on her crown, and farther on is one bearing

a tray of fruit. On the shady side of the street are women with little piles of yams, peppers, limes, or joints of sugar cane for sale.

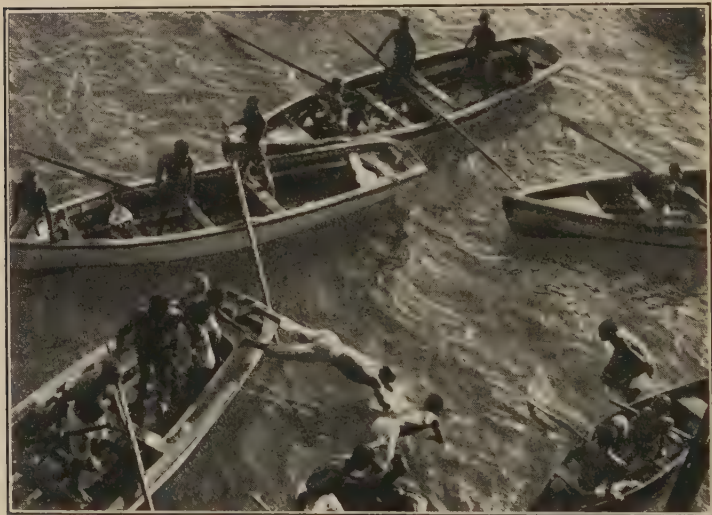
Here we are at the docks. Let us stop and watch the native boys diving for coins. No matter where a coin is



Frequently we meet United States marines.

thrown, one of the boys is sure to come up clutching it tightly in his hand. See those Negro women carrying coal on board that steamer at the wharf! The coal is in baskets on their heads, but the women balance them as easily as though they were filled with feathers. They do not even use their hands to steady the baskets.

The harbor of St. Thomas is one of the best in the West Indies. It is almost enclosed by a projecting peninsula on each side, and is protected from the sea by an outer fringe of small islands. However, even the high hills all about do not protect it from hurricanes. One of these hurricanes, which occurred not many years ago, wrecked many ships



It is fun to watch the native boys diving for coins.

in the harbor, threw smaller boats up on the shore, and tore dozens of houses from their foundations. Trees were uprooted, sheet-iron roofs were torn off buildings, and telephone wires were dashed to the ground. Fruit trees and crops were destroyed, and hundreds of people were left destitute. To-day the buildings of St. Thomas have hurricane doors and shutters.

We end our exploration of St. Thomas by a trip on pony-

back to the top of the mountain ridge behind the city. From this ridge we can see all over this island and can obtain glimpses of other lands in all directions. That land to the south is St. Croix (krwä'), which is forty miles away, and the little island only a few miles off the east coast of St. Thomas is St. John.

The Virgin Islands of the United States consist of the three larger islands of St. Croix, St. Thomas, and St. John, together with about fifty smaller ones. Several of the islands in the Virgin group northeast of St. Thomas are owned by Great Britain.

This island of St. Thomas measures only thirteen miles from east to west, and from north to south only two or three. There are no rivers or ponds on it, and the hills are thinly covered with vegetation. There are no forests and few cultivated patches. Most of the people on the island live in or near the city.

The largest and richest of the Virgins is St. Croix. Its rolling hills provide pasture for herds of cattle, and its rich soil raises sugar cane, coconuts, fruits, and sea-island cotton. Cane is the most important crop, and sugar is the chief export from these islands.

The island of St. John is only nine miles long and about half as wide, and has less than a thousand inhabitants. The chief industry is gathering the leaves of the bay tree, which grows wild there. These leaves, which are used for making bay rum, are collected by children who climb the trees and break off the twigs. They are then crushed to obtain the oil in them and the oil is distilled. Most of the bay rum made here is purchased by the British.

Taken as a whole, the Virgin Islands are of little commercial importance. They were bought by the United States because of their position at the eastern gateway to

the Caribbean. There is a naval station at St. Thomas, and detachments of marines are kept on the islands to maintain order. The governor is appointed by the President of the United States.

LX. THE LESSER ANTILLES

WE shall end our travels in the West Indies by a voyage through the Lesser Antilles. All of these islands are small and populated mostly by Negroes. Leaving the Virgins, we steam past the little British islands of Anguilla (ăn-gwĩl'á) and St. Barthol'omew, and make our first stop at St. Christopher, which also belongs to England. This islet was named by Columbus after his patron saint, but it is more often called St. Kitts, Kitt being the nickname for Christopher. During our stay, we take an automobile and drive clear around the island, passing many sugar plantations. In the forests we see hundreds of wild monkeys. We climb Mount Misery, a half-dead volcano, and afterward visit Brimstone Hill, close to the shore, which looks as though it had been thrown out of the crater.

South and east of St. Kitts are other British islands. Antigua (ăn-tē'gwä), Nevis (nē'vīs), and Montserrat (mōnt-sēr-răt'), are all small and of little importance. Nevis is interesting to us because Alexander Hamilton was born there. Farther south is Guadalupe (gô'dâ-lōōp'), a French island that raises sugar, vanilla, coffee, and cacao. Its port is hot and unhealthy, and we decide not to go ashore. Still farther south is the British island of Domin'ica, so named because Columbus discovered it on Sunday. It is volcanic and is noted chiefly for its limes and the manufacture of lime juice. It has a settlement of Carib Indians,

being one of the few places in the West Indies where any of the aborigines are still living.

Our next stop is at Martinique (mär'tī-nēk'), twenty miles south of Dominica. We land at Fort de France (fôr dē frāns') and climb Mont Pelee (mon' pē-lā'), the terrible volcano which in 1902 ruined the town of St. Pierre



Mont Pelee, a beautiful and terrible volcano.

(săn' pyâr'), and a great part of the island. The volcano is less than a mile high, but it periodically bursts forth into awful eruptions, which deluge farms and villages, destroying multitudes of people.

Martinique has many fertile valleys, and its appearance is somewhat like that of Tutuila in Samoa. It belongs to France and is governed by that country. Its people are chiefly mulattoes. The women wear dresses of bright colors and have great hoops in their ears. The products

are sugar and cacao and the fruits of the tropics. It was in Martinique that the Empress Josephine, the first wife of Napoleon, was born. We see a beautiful statue of her in Fort de France.

From Martinique we make our way southward to St. Lucia (lū'shī-à), belonging to Great Britain. The island is volcanic but produces sugar, cacao, and limes. Its capital, Castries (kàs'trē), lies on a good harbor and is an excellent coaling station. Our steamer goes right up to the wharves, and we watch the ships taking on coal while we wait, but we do not have time to explore the island.

Leaving Castries, we sail for Barbados (bär-bā'dōz), stopping at Kingstown, the capital of St. Vincent. Later, after leaving Barbados, we shall pass Grenada and Tobago (tō-bā'gō), both of which belong to Great Britain. Grenada and St. Vincent are volcanic. They have a rich soil and raise all sorts of tropical fruits, including spices and cacao. The sea island cotton raised on St. Vincent is the best grown in the British Empire. The island is noted also for the production of arrowroot, from which is made a food for children and invalids.

The moment our steamer casts anchor at the port of Bridgetown, it is surrounded by boats filled with Negro men and women bringing tropical fruits, shells, and other things for sale. We land and find ourselves in one of the quaintest towns we have yet seen. The buildings are of wood or of coral rock. Many are of two and three stories; some have awnings over the streets, and we can walk from store to store in the shade.

How bright everything is, and how dusty! The white coral roads are dazzling under the sun, and we are warned to buy smoked glasses to shield our eyes during our trips over the island.

See the sugar! There are hogsheads and bags of it on the wharves; there are barrels of rum, and the rich smell of molasses fills the air. This little island is only about twice as large as the District of Columbia, but it has thousands of acres of sugar fields, a large number of sugar mills, and some distilleries that make rum. Cotton ranks next to sugar in importance.

Barbados is so thickly populated that it has more than a thousand people to a square mile. Most of its inhabitants are Negroes, there being less than fifteen thousand whites out of a total population of more than one hundred and fifty thousand. The streets are filled with blacks and mulattoes, nearly all dressed in white. The men wear white shirts and trousers and white straw hats, and the women white or colored dresses and bright-colored turbans. How straight the women are! There come two with bundles on their heads. It is this way of carrying things that gives them their erect figures. Farther on is a black policeman with a white helmet. There are black soldiers and black merchants, lawyers, and doctors, as there were in Haiti.

The sugar estates of Barbados are owned largely by colored people, although the island belongs to England and is ruled by a governor sent out from that country. The blacks are more industrious than those of any other island in the West Indies. For this reason, thousands of them were brought into Panama by the Americans to work on the Canal.

Barbados has a cooler and more healthful climate than the other islands of the Lesser Antilles, and it attracts more tourists. We take motor-car rides about Bridgetown and over the island. We pass tennis, cricket, and polo grounds, take a dip in the surf at one of the bathing beaches, and visit friends in the suburb of Belleville, where many of the



Windmills formerly were used to grind the sugar cane.

best homes are located. Out in the country we ride for miles with sugar plantations in sight. The island raises fine fruit, and we stop now and then to buy guavas, mangoes, oranges, and limes.

Trinidad is the next island we visit. It is the largest of the Lesser Antilles, and, next to Jamaica, the largest British possession in the West Indies. It is a rectangular island almost as large as Delaware, lying off the coast of Venezuela, so close to the South American continent that we could cross over in a few hours. It is the most southerly of the West Indies, and is only ten degrees from the Equator. It is thickly populated, having more than three hundred and fifty thousand inhabitants.

The chief products of the island are cacao, sugar, and coconuts, and among its people are more than one hundred

thousand East Indians who have been brought here to work on the plantations. We see Hindus and Chinese among the blacks and whites at the wharf of Port of Spain, where we land. The vegetation is like that of Ceylon, and we wonder if we are not off the coast of southern India, instead of South America.

The capital of Trinidad is Port of Spain. It is a well kept little city with stone buildings, wide paved streets, good stores, and all modern improvements. In the suburbs are many handsome villas set in beautiful gardens. Hiring automobiles, we ride out into the country, visiting the plantations and coconut groves. Trinidad produces practically every fruit and vegetable known to the tropics. It is so near South America that it has many of the plants, animals, and birds found on that continent. There are vast forests, in which are armadilloes, peccaries, ant-eaters, monkeys, and many other wild animals. The streams abound with alligators and fish. Now we stop to gather flowers and ferns by the roadside, now to watch the butterflies, which are so beautiful in this part of the world, and again to laugh at the monkeys, which angrily scold at us out of the trees.

Our most interesting trip is to La Brea (lä brä'á), a little peninsula on Trinidad about thirty-six miles from Port of Spain. Upon this peninsula is an asphalt lake, from which have come the pavements of many an American city. It is in the top of a hill about one hundred and thirty feet above the sea. It is a mile and a half in circumference, and in it there are several million tons of asphalt.

We go to La Brea by sea, smelling the pitch as we near the peninsula. The beach is coated with hard pitch, and there are grayish black pitch pebbles upon it. We make our way up the black road to the top of the hill, and at

last we stand on the border of the lake. It looks somewhat like a great sheet of asphalt pavement, dotted with little islands of grass or stunted trees. It has cracks filled with water, and in some places gas is coming out.

We see men on the lake, digging pitch, and we start across it. At the center our boots sink in almost to our



Digging pitch from an asphalt lake in Trinidad.

ankles, and we hurry on, fearing we may get fast in the pitch and not be able to pull ourselves out. Nevertheless, our shoes are comparatively clean. There is so much water and oil in the asphalt that it does not stick. We take up some and squeeze the water out of it with our hands, and

are told we might knead it an hour before it would become sticky.

Vast quantities of this asphalt are shipped away every year, but the pitch gradually rises and fills the places dug out, so that one really does not know how much there is. An endless chain of buckets extends from the lake to the pier on the waterfront so that the asphalt can be loaded directly into the ships that carry it away to seaports in other lands.

1. What is the chief crop of Jamaica? What other fruits grow here? What spices?

2. What Jamaican city was destroyed by an earthquake? Name some other earthquake disasters of this century.

3. What countries occupy the island of Haiti? Which is the larger? What are the national languages of these republics? What is the national language of Jamaica? To what race do most of the people belong?

4. What improvements have the United States marines brought about through their occupation of Haiti and the Dominican Republic?

5. Where is Columbus buried?

6. Compare Porto Rico in size with some of our states. What are its chief products?

7. By whom was San Juan founded? How is the island governed? Are most of the people white or colored? Tell something about the schools.

8. From whom did the United States buy the Virgin Islands, and when and why? Of how many islands do they consist? What is the chief city? The chief export?

9. Name some of the most important of the Lesser Antilles, and the countries to which they belong. What is the chief product in these islands?

10. What famous American was born on Nevis? What famous empress was born on Martinique?

11. What active volcano is on Martinique?

12. For what product is Trinidad noted? For what is it used? What Asiatic people do we find on this island?

LXI. ISLANDS ABOUT SOUTH AMERICA

RETURNING to Port of Spain, we study the map to decide where to go next. As we look over the globe we see that we have visited the waters about Australia, Asia, Africa, Europe, and North America, but not those of South America. South America has but few island groups near it, and none of much importance, with the exception of the archipelago of Tierra del Fuego (tyēr'rä dël fwā'gō), which belongs to Chile and Argentina, and which we visited during our travels in those countries.

There are a few other islands, however, that are of interest to us, and we can see them by boarding at Panama a ship starting out on a cruise around the South American continent. We reach Panama by steaming westward from Trinidad, passing on the way the six Dutch islands that make up the colony of Curacao (kōō-rä-sä'ō). We stop at Willemstad (wīl'ēm-stāt), the chief city of these islands. It has a good harbor and is noted for its petroleum refineries, the oil being brought here from Venezuela.

A few hundred miles west of Panama is the little island of Co'cos, belonging to Costa Rica. It is overrun by tangled jungle and is so small that it is not even put on most maps; nevertheless, it is famous. During a revolution in South America about a hundred years ago, jewels and gold worth millions of dollars are thought to have been buried here for safekeeping by residents of Peru. The ship that brought the treasure was sunk on the return trip to the mainland. Since that time, many expeditions have come here to dig for this treasure. It is said that some of it has been found, but the greater part, we are told, has never been located. We are excited by the stories we hear of all this wealth.

If we had a chance, we might even find some of it! Who knows but that some of us may come back here again and locate the treasure?

The next islands we visit are a little group scattered over the ocean about six hundred miles west of Ecuador, to which they belong. These are the Galapagos (gä-lä'pā-gōs), which is a Spanish word for turtle. They were so named because of the huge turtles found on them. These reptiles are often three feet high, bigger than any other turtles in the world. Most of them have been killed for the oil they contain. There are many other animals and plants on the Galapagos that exist nowhere else on earth. There are queer flowers and birds, and lizards three or four feet long.

Farther south along the coast are the Guano (gwä'nō) Islands. They are masses of volcanic rock rising out of the ocean opposite the great desert of western South America. They are famous for millions of birds that roost on them and live and die there, making a valuable fertilizer, shiploads of which are sent to Europe and the United States.

Rain seldom washes these islands, and so they are bare of everything green. The birds live on the fish of the surrounding waters. Many of them are pelicans, which have great pouched bills in which they scoop fish up out of the water, eating until they can eat no more. Then they climb upon these islands and sit until they have digested their food. There are also vast flocks of sea gulls and other birds, which bring the fish they catch to the islands. Sometimes seals, too, crawl up out of the water and die upon them. This has gone on for ages, and, since there is but little rain, a great mass of manure has accumulated, which is so valuable that nearly all of it has been carried away in ships, bringing to the people of Ecuador, to whom the islands belong, many millions of dollars.

South of the guano beds, and farther west, is an island belonging to Chile, which is especially interesting to us. It is known as Juan Fernandez (hwän' fer-nän'dāth), and is the island upon which Alexander Selkirk, the sailor whose adventures inspired the story of *Robinson Crusoe*, was cast away. Selkirk, disagreeing with the captain of his ship, had mutinied, and he was given the choice of being hanged or left alone on this desert island. He was landed with a small supply of provisions, and he lived on the island for four years and four months. At the end of this time an English war vessel, attracted by his watch fires, called and took him to England. There he wrote the story of his adventures, and it is supposed that this story suggested to Daniel Defoe the *Adventures of Robinson Crusoe*. Because Defoe had a better knowledge of the islands in the southern part of the Caribbean Sea, he made his story correspond to them in its descriptions of scenery, products, and plants.

To-day there are about two hundred and fifty people living on Juan Fernandez. The men are engaged in fishing and whaling. There are two schools, a church, a postoffice, and a radio station.

Almost two thousand miles west of Juan Fernandez is Easter Island, which also belongs to Chile, although it is really one of the South Sea Islands. It is the most easterly of the Polynesian group, to which Tahiti belongs. It is about fifty-five square miles in area, and has hardly a hundred inhabitants. These are natives who have been Christianized by missionaries. They raise bananas, sugar cane, and sweet potatoes, and own a few goats and chickens. There are some cattle and sheep on the island.

Easter Island is noted chiefly for the great stone images that the earliest white explorers found there. There are figures of men and the remains of platforms, pedestals,

and houses. All are made of stone found on the island. The natives know nothing about them, and their origin is a mystery.

The next islands we visit are the Falk'lands, which are in the Atlantic on the other side of South America, about three hundred miles east of the Strait of Magellan. These islands are farther south than any others we have visited in these journeys; but, owing to the warm ocean currents flowing by them, the grass is green all the year. There is a certain kind of grass, called tus'sock, which grows to a height of six feet. All told, the Falklands have only about half as much land as Vermont; but they support hundreds of thousands of sheep, and more than a half million dollars' worth of wool is exported every year.



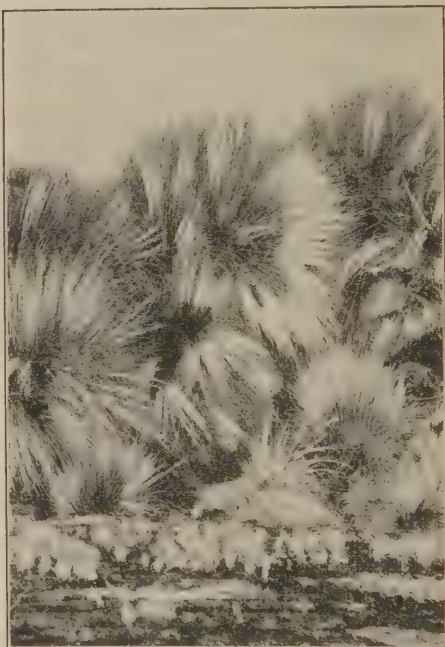
Stone image.

The Falklands are about the windiest islands on the globe. Cold winds blow every day, almost all day long. They blow so hard that not a tree can live, and the people say that potatoes are sometimes blown out of the ground! It is always cloudy here. The air is moist, there are many swamps, and the scenery is dreary.

The Falklands are owned by Great Britain, and their people are nearly all Scotch. The capital, Port Stanley, is a little town of less than a thousand people, with English churches and schools, and cottages not unlike our own.

The shepherds live in little huts at wide distances from one another, so that a child has often to ride five or ten miles if he would have a game with his next-door neighbor.

They are so far apart that they can not have schools like ours, so the government furnishes traveling schoolmasters, who go from one shepherd's home to another to teach the children. The teacher stays with each family a fortnight; then, having laid out a course of study, he goes on to the next family. On his return, he examines his pupils on what they have studied during his absence.



Tussock grass in the Falklands.

Below the latitude of the Falklands there are several small islands claimed by various countries. Great Britain owns South Georgia, the South Shetlands, the South Orkneys, the Sandwich group, and Graham's Land, all of which are below the Antarctic Circle. When the South Pole was first reached by Roald Amundsen in 1911, many hitherto undiscovered lands were found, but little is known about them to this day. They are covered with ice and snow and inhabited only by the seals and sea lions that go there to breed, and by penguins and other birds. Whaling is carried on in the waters near by.

LXII. IN THE ARCTIC OCEAN

WE have finished our long journey over the world, and have returned to the United States. Looking at the maps and globes, as we talk over our travels, we find there are many islands we have not visited on this trip, but that is because we stopped there on former journeys.

The British Isles we visited while we were traveling in Europe. When in Asia we saw the Japanese archipelago, Formosa, Hongkong, and Singapore. Tierra del Fuego was explored during our tour of South America, and we learned about Vancou'ver, the Pribilof' Islands of Alaska, and the fishing banks of Newfoundland during our journeys in North America. While in Africa we spent several days on the island of Zanzibar'.

Among the islands we have not visited at all are those in the Arctic Ocean about the North Pole. These islands are mostly vast wastes of ice and snow, with icebergs floating around them and with glaciers extending out into the sea. They are so barren and cold that few people live on



Immense icebergs drifting on Disco Bay, Greenland.

them, and they are in the region of long days and long nights, where for some months the sun never sets, and where for other months it is dark both day and night.

The farthest north lands on the globe are better known than those about the South Pole. The North Pole was first discovered by Robert E. Peary in 1909, and since then there have been other attempts to reach it. Explorers have crossed many of the icy wastes around it in dog sleds, and in 1926 American and European aviators for the first time flew over the Pole in airplanes and dirigible airships.

The largest of the Arctic islands is Greenland, which, next to Australia, is the largest island in the world. It is about one fourth the size of the United States without Alaska and our outlying possessions, and more than three fourths of it is covered with an enormous sheet of ice hundreds of feet thick. This ice cap, as it is called, is so large that if it could be lifted up and spread over our country, it would cover all our Atlantic states with the exception of Georgia and Florida. The ice ends in glaciers at the shores, or some distance back from them. In the interior it covers mountains and valleys, although some of the mountains are more than two miles in height.

Here and there the ocean runs far into the land, and at places glaciers move slowly down to the water, breaking off from time to time in great masses, with a noise like thunder. It is said that every year more than a billion tons of ice push out from the shores of Greenland into the sea.

This vast country is sparsely populated. It belongs to Denmark and has all together only a few hundred Danes and about fifteen thousand Eskimos. The Danes govern the island. They have little trading places along the coast where they bring wheat, coffee, sugar, tobacco, and other things, which they exchange with the natives for furs,

sealskins, dried fish, and the down of the eider duck. Some of them have small gardens where they raise vegetables during the few summer months.

The Eskimos usually live near the shore. They have little huts of stone or turf, and, in the winter, of snow and ice blocks. Hunters and fishers, they catch seal and walrus, which furnish a great part of their food. They net ducks and other birds, and sometimes kill musk oxen and polar bears. They drink melted snow water, and do much of their cooking in a rude way, with fish oil and blubber.

The men and the women have much the same dress, both wearing stockings and trousers of sealskin, with the fur turned inward, and also skin boots. The men have jackets and hoods of fur, and the women sometimes have pouches or pockets sewed to the back of their garments. In these the babies are carried until they are old enough to walk.

The Eskimos make boats of driftwood, covered with sealskin, and also sleds of bone, wood, and skin, in which they travel over the frozen ice, drawn by dogs. They are of a low grade of civilization, and of small importance in the work of the world.



An Eskimo mother and her baby.

Another island that formerly belonged to Denmark is Iceland, which lies just south of the Arctic Circle. Its climate is tempered by the warm winds from the ocean, and it has a population of almost a hundred thousand. These people are called Icelanders, and they are the descendants of the Norsemen who came from Scandinavia and made the first settlement here in the ninth century. The



Norsemen were also the people who, it is claimed, discovered America almost five hundred years before Columbus crossed the Atlantic.

Iceland is about the size of Ohio. It is very mountainous, and it has enormous

volcanoes that have thrown out so much lava that they have covered about one tenth of its surface. There are on it more than one hundred volcanoes and many hot springs, notwithstanding that the country is so far north, and it has great glaciers and vast fields of ice and snow. One of these ice fields is three times as large as Rhode Island.

Less than one seventh of the area of Iceland is productive, and about the only crops are hay, potatoes, and turnips. There are no forests or trees, but there are pastures on which horses, sheep, cattle, and goats can graze. There are factories where wool is manufactured for export, and there are dairies that make butter which is sold in England. The waters about the island are full of fish, and millions of dollars' worth of cod and herring are exported to various countries every year.

Iceland is now an independent state, although the Danish king is also its sovereign. It has a parliament of its own, and both men and women vote. The capital is Reikiavik (rā-kyá-vēk'), a thriving little city on the west coast, and there are five other towns of more than one thousand population each. Reikiavik has good schools, a university, a library, a museum, two banks, several newspapers, and electric lights. There are motor roads and telephones and telegraphs connecting it with other parts of the island.

Not far southeast of Iceland are the Far'oe Islands, which belong to Denmark, being inhabited by people similar to the Icelanders, who devote themselves to sheep rearing and fishing. Farther south are the Shetland Islands, noted for their beautiful ponies, and the Orkneys and Hebrides, (hěb'rě-dēz), all of which belong to Scotland. These islands also are outside of the Arctic Circle. Northeast of Iceland and inside the Arctic Circle, near the Russian and Siberian coasts, are Spitz'bergen, Franz Jo'sef Land, Nova Zem'bla, the New Siberia Islands, and others.

The islands comprising Spitzbergen lie almost four hundred miles north of Norway, to which they belong. Valuable coal deposits have been discovered there in recent years, and there are now several mining towns. Whales and seals are caught off the coast, and the fur-bearing animals of the islands are trapped for their skins. The other islands have no permanent settlements, but they are visited by hunters from Siberia, who cross over with their reindeer to take advantage of the short grass, moss, and other kinds of stunted vegetation found there. They go also to hunt the bears, foxes, and other animals that live on the islands.

Except for Iceland and Spitzbergen, none of the islands of the Arctic are of any importance to commerce. They are visited only by explorers, and there are no regular steamer



Reindeer pull sleds and furnish milk and meat.

lines to them. However, airplanes are being used more and more in the Far North, and we hope that some day we shall have an opportunity to see these icy regions from the air. As it is now, we are glad to have returned from our long journey and to be once more safe at home.

1. What islands does Holland own near the north coast of South America?
2. Name and locate the islands or island groups about South America, and tell something about each.
3. When was the South Pole discovered, and by whom? The North Pole? When was the North Pole first reached by air?
4. What is the largest island on the globe, excepting Australia? To whom does it belong? What people live on it?
5. Find Iceland on the map. From what race are its people descended? What are its chief exports? How is it governed?
6. Name the other islands in and near the Arctic Zone, and tell something about each.

TABLES

TABLE I. AREA AND POPULATION OF CONTINENTS

	AREA, SQ. MI.	POPULATION
Asia	17,143,000	895,118,000
Africa	11,514,000	136,272,000
North America	9,392,000	146,126,000
South America	6,856,000	63,850,000
Europe	3,794,000	443,972,000
Australia, etc.	3,457,000	8,758,000
Antarctic Continent	5,000,000	.....
Total	57,156,000	1,694,096,000

TABLE II. AREA OF OCEANS

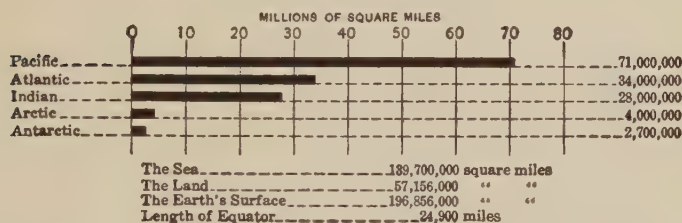


TABLE III. AREA AND POPULATION OF THE ISLANDS OF THE WORLD
BRITISH

	AREA, SQ. MI.	POPULATION
Australia		
New South Wales	309,720	2,100,000
Victoria	87,884	1,532,000
Queensland	668,497	758,000
South Australia	380,070	495,000
Western Australia	975,920	332,000
Tasmania	26,215	214,000
Northern Territory	523,620	4,000
Federal capital	940	2,000
Total	2,972,866	5,437,000
New Zealand	104,663	1,221,000

TABLE III (BRITISH, *continued*)

	AREA, SQ. MI.	POPULATION
Pacific Islands		
British Borneo	77,106	883,248
British New Guinea	159,040	626,000
Bismarck Archipelago	14,000	176,000
Solomon Islands	15,000	200,583
Gilbert Islands	166	23,318
Union Islands	7	1,000
Ellice Islands	14	3,500
Fanning Island	15	100
Cook Islands	7	6,800
Tongas	385	24,945
Fijis	7,083	157,266
Western Samoa { Savaii	660	37,299
Upolu	600	
Nauru	8	2,120
Indian Ocean Islands		
Ceylon	25,332	4,504,549
Mauritius	720	385,074
Maldiv Islands	70,000	30,000
Lacative Islands	10,600	10,600
Seychelles	156	25,847
Sokotra	1,382	12,000
Bahrein Islands	275	120,000
Andaman Islands	2,508	17,814
Nicobar Islands	635	9,272
Atlantic Islands		
Ascension	34	130
St. Helena	47	3,747
Bermudas	19	22,000
Falkland Islands	4,618	2,087
Shetland Islands	551	23,800
Orkney Islands	376	22,600
Hebrides	3,000	80,000
Mediterranean Islands		
Malta	124	224,680
Cyprus	3,584	310,709

West Indies	AREA, SQ. MI.	POPULATION
Bahama group	4,404	53,031
Jamaica	4,450	858,188
Virgin Islands (British)	58	5,082
Antigua group	170	29,201
Anguilla	35	36,518
St. Christopher	65	
Nevis	50	
Montserrat	32	11,890
Dominica	305	39,190
St. Lucia	233	54,304
Barbados	166	156,312
Trinidad	1,862	365,913
St. Vincent	150	47,591
Grenada	133	66,302
Tobago	114	18,751

UNITED STATES

Philippines		
Luzon	41,281	4,995,682
Mindanao	38,012	933,383
Samar	5,234	379,575
Negros	4,904	612,386
Palawan	5,619	69,053
Panay	4,761	950,613
Mindoro	3,936	71,931
Leyte	3,005	597,950
Cebu	1,867	855,065
Bohol	1,536	358,387
Other islands	4,245	489,975
Total	114,400	10,314,000

Hawaiian Islands

Hawaii	4,015	64,895
Maui	728	36,080
Oahu	598	123,406
Kauai	547	29,247
Molokai	261	1,784
Lanai	139	185
Niihau	97	191
Kahoolawe	69	3
Total	6,454	255,912

TABLE III (UNITED STATES, *continued*)

	AREA, SQ. MI.	POPULATION
Porto Rico	3,435	1,299,809
Virgin Islands	132	26,051
American Samoa	58	8,194
Guam	210	15,789

INDEPENDENT COUNTRIES

Cuba	44,164	3,368,923
Haiti	10,204	2,025,000
Dominican Republic	19,332	897,000
Iceland	39,709	94,690

DUTCH

Dutch New Guinea	151,789	200,000 (approx.)
Dutch Borneo	206,810	1,235,000
Sumatra	161,612	4,029,503
Moluccas	190,870	622,671
Celebes	72,679	3,108,337
Java, including Madura	50,745	34,984,171
Timor group	26,410	1,146,660
Flores	250	381,000
Sumbawa	5,186	150,000
Lombok }	4,072	1,565,014
Bali }		
Curaçao	212	30,883

FRENCH

New Caledonia group	8,548	57,208
New Hebrides (French and English)	5,700	60,000
Tahiti group	1,520	31,655
Reunion	970	172,190
Madagascar	224,721	3,613,341
Guadaloupe	688	229,839
Martinique	385	244,439
Corsica	3,367	291,160

	AREA, SQ. MI.	POPULATION
SPANISH		
Fernando Po	799	25,000
Canaries	2,807	498,516
Balearics	1,935	345,000
Annobon	8	1,204
ITALIAN		
Elba	140	24,213
Sardinia	9,299	864,174
Sicily	9,935	4,061,452
Rhodes	570	29,000
GREEK		
Corfu	245	138,000
Zante	168	42,502
Crete	3,365	330,000
PORTUGUESE		
Madeiras	314	169,777
Azores	922	243,000
Cape Verde	1,480	150,000
St. Thomas	359	58,907
JAPANESE		
Caroline Islands	550	22,000
Marshall Islands	176	9,800
Japanese Marianas	230	5,156
DANISH		
Greenland	46,740	14,000
Faroe Islands	540	16,349
CHILEAN		
Juan Fernandez	36	.....
Easter Island	55	.....
ECUADORIAN		
Galapagos Islands	2,868	400
NORWEGIAN		
Spitzbergen group	25,000	.....

426 AUSTRALIA AND OTHER ISLANDS OF THE SEA

TABLE IV. POPULATION OF CHIEF CITIES OF THE ISLANDS OF THE WORLD

PACIFIC ISLANDS		ATLANTIC ISLANDS	
Sydney, Australia . . .	1,012,070	Funchal, Madeira . . .	20,800
Melbourne, Australia . .	885,700	Ponto Delgada, Azores .	17,620
Adelaide, Australia . .	289,914	Hamilton, Bermuda . .	3,000
Brisbane, Australia . .	245,015	Reikiavik, Iceland . .	17,679
Perth, Australia . . .	176,467		
Hobart, Tasmania . . .	55,600		
Wellington, New Zea. .	118,490		
Auckland, New Zea. . .	180,790		
Christchurch, New Zea. .	118,270		
Dunedin, New Zealand .	77,480		
Noumea, New Cal'd'n' .	9,336		
Papeete, Tahiti . . .	4,601		
Suva, Fiji (white) . . .	1,741		
Honolulu, Hawaii . . .	100,000		
Manila, Philippines . .	285,306		
Cebu, Philippines . . .	56,502		
Iloilo, Philippines . . .	49,114		
Zamboanga, Philippines .	30,798		
Sandakan, Borneo . . .	11,936		
Brunei, Borneo . . .	10,000		
Kuching, Borneo . . .	30,000		
Banjermasin, Borneo . .	17,000		
Makassar, Celebes . . .	26,000		
Menado, Celebes . . .	9,000		
Batavia, Java . . .	138,551		
Surabaya, Java . . .	150,198		
Surakata, Java . . .	104,589		
Jokyakarta, Java . . .	70,000		
Benkulen, Sumatra . . .	7,000		
Padang	40,000		
INDIAN OCEAN ISLANDS		MEDITERRANEAN ISLANDS	
Colombo, Ceylon . . .	244,163	Ajaccio, Corsica . . .	22,264
Port Louis, Mauritius . .	52,740	Portoferraio, Elba . . .	6,705
St. Denis, Reunion . . .	21,538	Cagliari, Sardinia . . .	53,747
St. Pierre, Reunion . . .	27,895	Palermo, Sicily . . .	341,656
Tamatave, Madagascar .	11,762	Nikosia, Cyprus . . .	18,461
Tananarivo, Madagascar	58,459		
Majunga, Madagascar . .	10,171		
Diego Suarez, Madagascar	11,855		
		WEST INDIES	
		Nassau, Bahamas . . .	11,000
		Havana, Cuba . . .	538,721
		Camaguey, Cuba . . .	93,145
		Santiago de Cuba . . .	76,906
		Kingston, Jamaica . . .	62,707
		Port au Prince, Haiti . .	125,000
		Santo Domingo, Dom. Rep.	30,957
		San Juan, Porto Rico . .	71,443
		Ponce, Porto Rico . . .	41,912
		St. Thomas, Virgin Islands	7,747
		Bridgetown, Barbados . .	13,486
		Port of Spain, Trinidad .	63,654
		Willemstad, Curacao . .	14,000
		TABLE V. PRINCIPAL GOLD MINING COUNTRIES	
		Ounces	
		Union of South Africa . .	9,575,040
		United States . . .	2,528,900
		Canada	1,525,382
		Australia and New Zea. .	817,347
		Mexico	792,401
		Rhodesia	628,974
		Russia and Siberia . . .	573,877
		India	396,349

TABLE VI. PRINCIPAL SILVER
MINING COUNTRIES

	Ounces
United States	124,691,563
Mexico	53,100,000
Germany	15,432,000
Canada	11,980,836
Australia	8,500,000

TABLE VII. PRINCIPAL COPPER
MINING COUNTRIES

	Tons
United States	854,000
Chile	209,654
Japan	72,413
Spain and Portugal	63,933
Mexico	59,123
Belgian Congo	56,479
Canada	56,239
Peru	41,180
Germany	25,353
Australasia	13,800

TABLE VIII. PRINCIPAL TIN
MINING COUNTRIES

	Tons
Malay States	48,425
Dutch East Indies	32,749
Bolivia	32,600

TABLE IX. PRINCIPAL COUNTRIES
PRODUCING PETROLEUM

	Barrels
United States	764,000,000
Mexico	115,000,000
Russia	52,000,000
Persia	34,665,000
Dutch East Indies	21,500,000
Venezuela	20,200,000
Rumania	16,625,000

TABLE X. PRINCIPAL NICKEL
MINING COUNTRIES

	Pounds
Canada	73,770,842
New Caledonia	8,000,000

TABLE XI. PRINCIPAL COUN-
TRIES PRODUCING TEA

	Pounds
British India	349,361,000
Ceylon	160,732,000
Dutch East Indies	77,518,000
China	57,358,000
Japan	15,863,000
Formosa	14,377,000

TABLE XII. PRINCIPAL COUN-
TRIES PRODUCING COFFEE

	Pounds
Brazil	1,584,000,000
Colombia	230,041,256
Guatemala	144,190,000
Venezuela	115,000,000
Java	101,892,000
Mexico	79,972,000

TABLE XIII. PRINCIPAL COUN-
TRIES PRODUCING CANE SUGAR

	Tons
Cuba	4,475,953
India	2,903,040
Java	1,906,417
Brazil	675,608
Philippines	608,499
Hawaii	540,000
Porto Rico	489,818
Formosa	368,046
Peru	358,252
Australia	330,960
United States	327,701
Dominican Republic	282,237
Mauritius	259,044

TABLE XIV. PRINCIPAL COUN-
TRIES PRODUCING RUBBER

	Tons
Malay States	101,311
Dutch East Indies	89,860
Ceylon	41,908
Brazil	17,995

TABLE XV. PRINCIPAL COUNTRIES PRODUCING RICE

	Pounds
India	73,906,560,000
Japanese Empire	23,395,394,000
Indo-China	7,931,222,000
Java and Madura	6,480,197,000
Siam	3,261,542,000
Philippine Islands	2,385,630,000
United States	1,087,750,000
Madagascar	953,000,000

TABLE XVI. CHIEF SHEEP-RAISING COUNTRIES

Australia	78,803,000
Soviet Russia	46,700,000
United States	35,033,000
Union of South Africa	31,418,000
Argentina	30,671,000
China	25,950,000
New Zealand	23,775,000
British India	22,082,000

TABLE XVII. DISTANCES BETWEEN PORTS OF THE UNITED STATES AND THE CHIEF ISLANDS OF THE WORLD

FROM	TO NEW YORK	TO NEW ORLEANS	TO SAN FRANCISCO
Apia, Samoa . . . . .	.....	.....	4,161
Batavia, Java			
Via Panama Canal	13,167	12,566	.....
Via Suez Canal	10,182	11,598	.....
Hamilton, Bermuda	676	.....	.....
Colombo, Ceylon			
Via Suez Canal	8,610	10,146	.....
Via Singapore . . . . .	.....	.....	8,900
Guam . . . . .	.....	.....	5,054
Havana, Cuba	1,227	597	.....
Honolulu, Hawaii . . . . .	.....	.....	2,097
Via Panama Canal	6,686	6,085	.....
Kingston, Jamaica	1,473	1,165	.....
Manila, P. I. . . . .	.....	.....	6,943
Via Panama Canal	11,546	10,993	.....
Melbourne, Australia . . . . .	.....	.....	7,040
Via San Francisco	10,231	9,522	.....
Via Panama Canal	10,028	9,427	.....
Via Suez Canal	12,981	14,303	.....
San Juan, Porto Rico	1,428	1,539	.....
Tutuila, Samoa . . . . .	.....	.....	4,150
Via San Francisco	7,341	6,632	.....
Wellington, New Zealand . . . . .	.....	.....	5,909
Via Panama Canal	8,540	7,939	.....
Via Suez Canal	14,230	15,620	.....

NOTE: In calculating approximate time of travel, allow 30 miles an hour for distance by railroad, and 15 miles an hour for distance by steamer.

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